TEN YEAR ANALYSIS OF REPORTED DISEASES IN ACTIVE DUTY NAVY AND MARINE CORPS PERSONNEL (1990-1999)

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FROM THE COMMANDING OFFICER

The Navy Environmental Health Center is the Program Manager for Deployment Medical Surveillance for the Navy and Marine Corps. One of our primary responsibilities in fulfilling this role is to supply our customers with valuable information on the health of our military population. This "10 Year Report" is designed to assist in providing data and commentary that can be used to develop local and service-wide policy for prevention of disease and promotion of health.

Collection and analysis of information is only useful if it is disseminated to those who are in the best position to take appropriate action. The broad concept of surveillance is not complete if the information is not used to take effective action. We at the NEHC home office, our Navy Environmental and Preventive Medicine Units (NEPMUs) and Navy Disease Vector Ecology and Control Centers (NDVECCS) around the world are in place to partner with you to help ensure the readiness of the Navy and Marine Corps. Please do not hesitate to contact us!

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FROM THE PREVENTIVE MEDICINE DIRECTOR

As the incoming Director of Preventive Medicine, I wanted to thank my predecessor, CDR Robert Rendin, MSC, USN, and his deputy, CDR Brian Murphy, MSC, USN. Their foresight and contribution ensured the preparation of this "Ten Year Analysis of Reported Diseases in the Active Duty Navy and Marine Corps Personnel (1990-1999)", updating the previous report covering 1988-1997. Their efforts were greatly assisted by numerous people within the command and in the Navy Environmental and Preventive Medicine Units around the globe. This publication demonstrates trends in diseases through the period, and reflects changes in both prevention strategies and populations at risk. As such, this publication is an important measure of the health of the Force, and provides Preventive Medicine professionals with background information to enhance Force Health Protection.

This report covers a period of dramatic maturation of the Navy Disease Reporting System (NDRS), progressing from the familiar Disease Alert Reports ("DAR") to the current Medical Event Reports ("MER"). As we continue with "webification" of the disease reporting process and full integration into the SNAPS Automated Medical System (SAMS) and Theater Medical Information Program-Maritime (TMIP-M), we anticipate that reporting will become faster and more complete. To keep in alignment with the changing world, we in the Preventive Medicine arena must rededicate our efforts in disease and injury surveillance to ensure the readiness of our Navy-Marine Corps team to defend our great Nation.

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INTRODUCTION

Navy and Marine Corps medical activities have been reporting selected communicable diseases for many years. This information is useful in the control and prevention of disease. The information flow is from the medical activity or line command that makes the diagnosis to the area Navy Environmental and Preventive Medicine Unit (NEPMU). After review, the NEPMUs forward these reports to the Navy Environmental Health Center (NAVENVIRHLTHCEN) where they are entered into a database and are analyzed. This report summarizes data on reportable diseases in the U. S. Navy and Marine Corps for 1990-1999.

History

The original format for reporting diseases in Naval forces was the Disease Alert Report (DAR). These reports were commonly sent to the NEPMUs by mail or Naval message. Copies were kept on file at the NEPMUs and NAVENVIRHLTHCEN. Beginning in 1987 DARs were entered into a simple database program at the NEPMUs; this allowed for analysis and reporting. In 1994 electronic reporting was made possible using Epi Info, a simple statistical package, which was developed by the Centers for Disease Control and Prevention (CDC). Most sites continued to report by mail or message. However, the NEPMUs were required to put all reports into the Epi Info program before forwarding to NAVENVIRHLTHCEN.

The Naval Disease Reporting System (NDRS), an automated computer software program, became an official part of the reportable disease system in 1998 with the release of the *Medical Event Reports* - BUMED Instruction 6220.12A, replacing the *Disease Alert Report* instruction. This instruction directs that all units of the Navy, Marine Corps, and Military Sealift Command (MSC) providing inpatient or outpatient care, submit Medical Event Reports (MERs) using the NDRS. A MER is required for selected communicable diseases, injuries, outbreaks, and other diseases of special concern that may affect operational readiness or present a danger to the community.

The stated goals of this reporting system are to "provide timely and adequate public health response to medical events; to allow statistical estimation of the distribution, trends, and risks associated with reportable medical events; and to assist in the development and assessment of policy and resource allocation for the control of medical events".

The NDRS was adapted from the Air Force reportable disease surveillance program. It was tested in 1997 and deployed to the Fleet in 1998. The current version is NDRS 3.0, which was released in April 2000. This program is the backbone of the reportable disease system. Each new version will be revised to reflect customer feedback and increase compliance with the Defense Medical Surveillance System.

A Department of Defense (DoD) Reportable Disease Working Group was formed in 1997. This group developed a Tri-Service Reportable Events list. This list includes more environmental and occupational diseases than previously reported. The emphasis is no longer only on communicable diseases. The Navy and Marine Corps use this list with the addition of a number of other diagnoses considered important to our Services.

In 1999, over 90% of the Medical Event Reports were submitted via the NDRS. Users have expressed pleasure with the ease of use for data entry. The reporting functions of NDRS are currently being integrated into the Shipboard Automated Medical System (SAMS) program veresion 8.02.

Limitation of Data

Reportable disease surveillance systems use passive surveillance. This means that the activities receiving reports are dependent upon those who initially generate the reports. However, there is an unspoken obligation on the part of the receiver to produce policy, training, and tools to support the efforts of the reporting activities. It is also essential that the activities receiving the reports analyze the data and then provide their findings back to the primary customer - the reporting activities.

Since the reportable disease system is a passive surveillance system, under reporting and inaccurate reporting is a major concern. Not all activities diligently comply with reporting requirements. Furthermore, NAVENVIRHLTHCEN has made a number of changes over the years in reportable disease policy that have affected the consistency of the program.

The data in this document represent only reports that were submitted to the NEPMUs and transferred to NAVENVIRHLTHCEN. An activity may have diagnosed more cases of a disease than is reflected in this data, but if a disease report was not generated and successfully transmitted, it is not included in this data. In some cases, 100% of disease incidence in a given year or from a given activity is reflected. In other cases the data may only represent a small fraction of the number of cases that were actually diagnosed in a certain disease category or at a specific activity. As we improve our reportable disease system, this will be less of a problem; and the data reported will more accurately reflect the actual disease burden.

Our Future Commitment

As we look to the future, we are seeking to develop useful and friendly technology to increase both the efficiency and effectiveness of our disease and non-battle injury surveillance system. This is a significant challenge in an age of resource constraint and burgeoning technology. Customer service and compliance continue to be important issues in implementing a successful system. The combination of the technical benefits of the NDRS and the current policy in the MER instruction will better equip our customers and enhance our partnership in disease and non-battle injury surveillance. We shall continue to improve surveillance policy and products based on customer recommendations and current requirements.

OVERVIEW

This report presents descriptive statistics of communicable diseases reported among active Navy and Marine Corps personnel. This is the second annual report on the disease trends of Navy and Marine Corps personnel covering a ten-year period. With a significant number of Medical Event Reports provided to NAVENVIRHLTHCEN through NDRS over the past two years this report is inclusive of both 1998 and 1999 data. It is intended as a reference document for operational commanders, health planners, researchers, investigators, policy makers, and others who are concerned with the public health implications of these diseases. All material in this report is unclassified.

Many factors can affect disease occurrence in Naval forces from year to year. These include the introduction of new vaccines, improved personal protection measures, better control of the environment, decreased or increased deployments to areas of risk, changing cultural values, and the success of prevention programs. We in the preventive medicine community can have our greatest impact by developing, implementing, improving, and maintaining effective prevention programs.

SECTION 1 - Disease Frequency, USN/USMC

The first two tables of this report provide the frequencies or the actual number of cases of diseases in the Navy and Marine Corps based on reports received from Naval Medical activities worldwide from 1990-1999. The two major statistics used to express disease burden are frequencies and rates. A frequency is the total number of cases in a population. In this case, all active Navy and Marine Corps personnel are considered the population.

SECTION 2 - Disease Incidence Rate, USN/USMC

Disease incidence, as noted in the tables in this section, indicates the number of cases per a certain population in a specified period of time. In this report the denominator chosen for the incidence rate is 100,000.

In 1998 and 1999, the three diseases with the highest incidence rates (cases/ 100,000) reported via the NDRS, were chlamydia (278.0 and 240.0, respectively for Navy personnel; and 586.0 and 446.8, respectively for Marines), gonorrhea (122.0 and 108.0, respectively for Navy; and 134.5 and 106.4, respectively for Marines), and animal bites which required administration of rabies vaccine (10.5 and 11.4, respectively for Navy; and 38.0 and 19.3, respectively for Marines). With the commencement of reporting of chlamydia and gonorrhea in October 1997, the significant increases noted between 1997 and 1998 is mostly like due to better reporting of these diseases to NDRS. There was a slight downward movement of both diseases 1999 within the Navy population and with Gonorrhea in the Marine Corps population. A decrease in incidence of chlamydia was noted in the Marine Corps population. A minimum of five years worth of incidence data will be required in order to determine a disease trend pattern. The bite incidence rates in the Navy population for 1998 and 1999 are compatible to 1997, whereas there was a 50% decline in the Marine Corps population between 1998 and 1999. Again, whether this reflects actual incidence or is a result of better reporting through NDRS will be determined in the out-years.

SECTION 3 - Ten Most Commonly Reported Communicable Diseases by Frequency
SECTION 4 - Ten Most Commonly Reported Communicable Diseases by Incidence

The tables in Sections 3 and 4 list the ten most commonly reported diseases from 1990 to 1999 in frequencies and incidence rates. In general, this list is looked upon as our "Ten Most Unwanted" List since these diseases represent a large part of the disease burden in days lost and medical costs. Many of these diseases can also be seen as a part of an epidemic that could compromise readiness. However, there can be other less often reported diseases such as meningococcal meningitis, which can be a significant disease burden with only a few cases, though not as much of an outbreak risk. Control of both is essential for an overall successful disease prevention program. There was a slight change in the frequency (Tables 5 and 6) from last year's report; within both the Navy and Marine Corps populations the identical ten diseases remain however there was a shift in their numerical order. This is most likely due to the reduction of cases of Varicella and Hepatitis A in which a vaccine is now available. The incidence of disease showed a change from last year (Tables 7 and 8) in that for the year 1999 Tuberculosis (Pulmonary) and Lyme Disease replaced Shigellosis and Hepatitis A within the Navy population, while Lymphogranuloma Venereum and Tuberculosis (Pulmonary) replaced Hepatitis A and B amongst the Marine Corps personnel. Again, this is most likely due to the availability of vaccine for both Hepatitis A/B and better reporting of disease occurrence through NDRS.

SECTION 5 - Frequency by Geographic Area

The geographic areas in this report are the areas of responsibility (AORs) of the four Navy Environmental and Preventive Medicine Units (NEPMUs). Medical Event Reports are sent to the NEPMUs, then forwarded to the Navy Environmental Health Center (NAVENVIRHLTHCEN) which collates, analyzes, and reports the data back to the originating activities. The AORs of NEPMU2 in Norfolk, VA, and NEPMU5 in San Diego, CA, have the largest number of installations and ships; consequently, they receive the most reports, as seen in tables 9-13 and figures 5-9. Though NEPMU6 in Pearl Harbor, HI, and NEPMU7 in Sigonella, IT, have less personnel and activities in their AORs, they represent the major areas of deployment.

SECTION 6 - Enteric Diseases

Enteric diseases continue to be a primary concern in maintaining readiness. Water and food-borne illnesses can immobilize a military unit in a short period of time. Fortunately, the frequency and incidence rate of hepatitis A has been greatly reduced over the last 10 years most likely due the institution of the Hepatitis A immunization at recruit training. For the enteric diseases described in the tables and figures of this section, continued vigilance with the water and food supply is required.

SECTION 7 - Sexually Transmitted Diseases (STDs)

Chancroid, chlamydia, gonorrhea, hepatitis B, lymphogranuloma venereum and syphilis are compared in tables 16 and 17 and figures 12 and 13. Syphilis has traditionally been the leading reportable sexually transmitted disease (STD) in the Navy and Marine Corps. However, in 1997 chlamydia and gonorrhea were added to the list of reportable diseases and quickly showed that they would not only be the most reportable STD, but the most commonly reported of all the reportable diseases. HIV cases are not represented in this report. HIV infection is reported by a separate system, not through Disease Alert Reports (DARs) or Medical Event Reports (MERs).

SECTION 8 - Vaccine Preventable Diseases

Over the past 10 years the incidence of hepatitis A declined by about 75% in Navy personnel. The hepatitis A vaccine was first introduced in 1995, and its use has been gradually increasing. In both the Navy and Marine Corps there has been a continued drop in the number of cases between 1995 and 1999. The decline in varicella among Navy personnel has been more dramatic, as shown in the figures in this section. It declined, from a high of 919 cases in 1990 to 292 cases in 1995, the year the vaccine was first administered to recruits. The number of cases further declined to 38 in 1996,10 in 1997 and 5 in 1998 illustrating the incremental benefit of the vaccination program. However, the was a significant raise in 1999 to 43 reported cases (an incidence rate of 11.62/100,000) of which 18 were reported from NMC San Diego. Further review of these 18 cases showed no clustering within what would be considered an "outbreak" period. This may be a consequence of better reporting, 2000 data is being tracked to determine causal effect. The Marine Corps' experience with varicella is similar. However, vaccines remain one of the most important means for preventing diseases such as hepatitis A, hepatitis B, and varicella.

SECTION 9 - Vector-borne Diseases

Both arthropod and vertebrate-borne diseases are monitored. Naturally occurring environmental and vector population cycles tend to make outbreaks of these diseases appear sporadic, both temporally and spatially. Location and timing of deployments further exaggerate fluctuation. Vector-borne disease rates are expected to be higher in Marines due to training and deployment being primarily in the field.

Data included are presented graphically for diseases of greatest operational significance (malaria, dengue), tick-borne diseases (Lyme, Rocky Mountain spotted fever), and for those of very low incidence (schistosomiasis, trypanisomiasis, leishmaniasis, and encephalitis). Encephalitis cases are not further delineated. West Nile virus, a mosquito-borne encephalitis, occurred first in the United States in 1999. No cases occurred in Navy or Marine Corps active duty or dependent populations. In future years, due to significant effort diverted to monitoring West Nile virus on naval installations in the eastern US, and the expected continued high level of interest in West Nile virus, West Nile numbers will be included if cases occur.

SECTION 10 - Comparison With Defense Medical Epidemiologic Database (DMED)

Reporting through NDRS has shown marked improvement in the year 1998 and 1999 over the previous years with viral meningitis. In 1998 67% of all active Navy and Marine Corps cases were reported compared to DMED and in 1999 it was 75% compared to DMED. In addition, one component leading to under reporting may be the fact that cases sent to NAVENVIRHLTHCEN are not included in NDRS publications until they have been confirmed.

The completeness and usefulness of the data in NDRS is totally dependent upon what is reported to NAVENVIRHLTHCEN. In order to gauge the amount of under reporting in the system, the number of reported cases of viral meningitis and malaria were compared to the Defense Medical Epidemiologic Database (DMED) inpatient data. DMED data are derived from Standard Inpatient Data Record (SIDR) reports. DMED is an online DoD database containing Tri-Service data, which can be used by public health and research personnel to evaluate the health of active duty members. These diagnoses were chosen since they should result in an inpatient record that is entered

into the DMED system. As presented in the two graphs, the NDRS capture of malaria cases in Navy and Marine personnel has improved to the point where NDRS has either reported more cases or is compatible with DMED.

We anticipate these positive trends will continue as more reporting sites are trained in the use of the NDRS software and receive the proper equipment to implement the program.

SECTION 1

DISEASE FREQUENCY, USN/USMC

Table 1. Disease Frequency, USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Amebiasis	31	17	10	2	1	3	3	1	4	0	72
Bites, Non-venomous rabies vaccination given	48	44	50	38	37	24	34	53	50	42	420
Bites, venomous	3	3	5	5	2	1	0	3	5	1	28
Brucellosis	1	0	1	0	0	2	0	0	0	0	4
Campylobacter	0	0	4	0	2	1	5	1	1	9	23
Chancroid	0	1	4	32	2	4	1	4	3	1	
Chlamydia*	-	-	-	-	-	-	-	231	1064	892	2187
Coccidioidomycosis	1	0	5	10	8	2	9	0	1	4	40
Dengue Fever	5	13	20	1	1	7	1	1	5	0	54
E. coli 0157:H7 infection *	-	-	-	-	1	-	-	0	1	0	2
Ehrlichiosis	0	0	0	0	0	0	0	0	0	1	1
Encephalitis	0	0	1	0	0	1	3	4	2	1	12
Giardiasis	40	32	27	31	18	8	9	21	16	18	220
Gonorrhea*	-	-	-	-	-	-	-	100	469	402	971
Gullian-Barre Syndrome	0	1	0	4	3	1	1	1	0	0	11
Hepatitis A	67	84	44	27	37	24	31	19	7	1	341
Hepatitis B	75	67	57	37	39	25	16	11	9	10	346
Hepatitis C	2	10	2	9	6	7	8	3	9	4	60
Legionellosis	0	1	1	0	1	1	1	1	0	0	6
Leishmaniasis	0	1	1	0	0	1	0	2	1	0	6
Leprosy (Hansen's Disease)	0	0	0	0	0	0	0	0	1	0	1
Leptospirosis	0	0	1	0	0	0	0	1	0	0	2
Lyme Disease	19	5	3	5	2	7	19	9	20	6	95
Lymphogranuloma venereum	46	30	9	14	9	4	5	3	3	1	124
Malaria	15	5	10	3	6	3	5	6	8	5	66
Measles	8	3	2	1	1	0	0	0	0	2	17
Meningitis (viral)	12	15	29	20	21	25	25	21	47	33	248
Meningococcal disease	3	2	3	2	4	0	1	0	1	2	18
Mumps	50	11	23	13	5	5	1	5	5	3	121
Paratyphoid Fever	0	0	0	0	0	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	2	0	0	2	4
Psittacosis	1	0	0	0	0	0	1	0	0	0	2
Rheumatic Fever	0	0	0	0	1	0	0	1	1	0	3
RMSF	1	2	0	0	0	2	0	0	2	0	7
Rubella	0	0	1	0	0	0	0	0	0	0	1
Salmonellosis	46	79	66	27	24	24	20	17	26	17	346
Schistosomiasis	0	0	0	1	0	0	0	0	0	0	1
Shigellosis	17	18	9	10	29	21	9	8	8	3	132
Strep, Invasive	0	0	0	0	0	1	0	0	2	1	4
Syphilis	153	142	109	108	84	55	37	30	21	16	755
Toxic Shock Syndrome	0	0	0	1	2	0	0	3	1	1	8
Toxoplasmosis	1	0	0	0	0	0	0	0	0	0	1
Trichinosis									2	0	
Trypanosomiasis	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis (Pulmonary)	4	7	9	6	8	8	8	5	29	21	105
Typhoid Fever	3	3	1	0	0	0	0	0	0	0	7
Varicella	919	767	402	473	234	292	38	10	5	43	3183
Total Population	579,417	570,262	541,886	509,950	468,662	434,617	416,735	387,774	382338	369993	

*Reporting requirement began October 1997

Table 2. Disease Frequency, USMC, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Amebiasis	2	1	1	0	3	0	0	0	0	0	7
Bites, Non- venomous rabies vaccination given	21	25	18	15	6	8	14	47	65	33	252
Bites, venomous	7	7	10	12	7	4	5	5	2	5	64
Brucellosis	0	0	0	0	0	0	0	0	0	0	0
Campylobacter	1	1	3	1	6	0	1	0	0	0	13
Chancroid	1	1	0	1	0	0	0	2	1	4	10
Chlamydia*	-	-	-	-	-	-	-	222	1002	764	1988
Coccidioido -mycosis	0	0	2	0	1	1	1	1	1	0	7
Dengue Fever	0	1	0	0	0	4	0	0	0	0	5
E. coli 157:H7 infection *	-	-	-	-	-	-	-	2	3	0	5
Ehrlichiosis	0	7	3	0	0	0	1	0	0	2	13
Encephalitis	0	2	2	0	0	0	0	1	1	0	6
Giardiasis	5	17	7	8	3	2	8	2	2	6	60
Gonorrhea*	-	-	-	-	-	-	-	60	232	182	474
Gullian-Barre Syndrome	0	1	1	0	1	0	0	0	0	0	3
Hepatitis A	27	26	3	8	7	4	7	2	0	0	84
Hepatitis B	25	20	23	15	7	6	9	4	5	4	118
Hepatitis C	1	2	2	2	0	0	1	0	0	1	9
Legionellosis	0	0	1	0	0	0	0	0	0	0	1
Leishmaniasis	0	1	1	0	0	1	0	0	0	0	3
Leprosy (Hansen's Disease)	0	0	0	0	0	0	0	0	0	0	0
Leptospirosis	0	0	0	1	3	0	2	5	5	5	21
Lyme Disease	14	27	11	55	4	13	21	7	10	17	179
Lymphogranuloma venereum	1	1	2	3	6	3	4	24	5	7	56
Malaria	49	12	5	46	9	3	2	5	1	5	137
Measles	0	1	0	1	0	0	0	0	0	1	3
Meningitis (viral)	1	7	7	5	9	8	8	8	19	18	90
Meningococcal disease	1	4	2	0	0	1	1	0	2	0	11
Mumps	6	0	22	4	6	0	2	0	2	0	42
Paratyphoid Fever	0	0	0	0	0	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	0	0	0	0	0
Psittacosis	1	0	0	0	0	0	0	1	0	1	3
Rheumatic Fever	0	1	0	0	0	0	0	0	0	0	1
RMSF	6	7	6	3	0	0	1	7	2	2	34
Rubella	0	0	0	0	0	0	0	0	0	0	0
Salmonellosis	15	13	6	11	9	7	5	6	12	13	97
Schistosomiasis	0	0	0	0	0	0	0	0	0	0	0
Shigellosis	3	4	6	12	11	2	2	2	2	1	45
Strep, Invasive	0	0	0	0	0	0	0	0	2	5	7
Syphilis	43	33	65	24	18	8	9	9	15	10	234
Toxic Shock Syndrome	0	0	0	0	0	0	1	0	0	0	1
Toxoplasmosis	0	0	0	0	0	6	0	0	0	0	6
Trichinosis									0	0	
Trypanosomiasis	0	0	0	0	1	0	0	0	0	0	1
Tuberculosis (Pulmonary)	1	2	4	0	2	1	1	1	18	9	39
Typhoid Fever	0	0	0	0	0	0	0	0	0	0	0
Varicella	317	274	191	60	52	67	11	2	20	28	1022
Total Population	196,652	194,040	184,529	178,379	174,158	174,639	174,883	171,637	171,288	171,326	

*Reporting requirement began October 1997

SECTION 2

DISEASE INCIDENCE RATES, USN/USMC

Table 3. Disease Incidence Rates (Cases/100,000), USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Amebiasis	5.35	2.98	1.85	0.39	0.21	0.69	0.72	0.26	1.04	0
Bites, Non-venomous rabies vaccination given	8.28	7.72	9.23	7.45	7.89	5.52	8.16	13.66	10.46	11.35
Bites, venomous	0.52	0.53	0.92	0.98	0.43	0.23	0	0.77	1.31	0.2
Brucellosis	0.17	0	0.18	0	0	0.46	0	0	0	0
Campylobacter	0.17	0	0.18	0	0	0.46	0	0	0.26	0.94
Chancroid	0	0.18	0.74	6.28	0.43	0.92	0.24	1.03	0.78	0.2
Chlamydia*	-	-	-	-	-	-	-	59.57	278	240.00
Coccidioido -mycosis	0.17	0	0.92	1.96	1.71	0.46	2.16	0	0.26	1.08
Dengue Fever	0.86	2.28	3.69	0.2	0.21	1.61	0.24	0.26	0.26	0
***E.* coli *0*157:H7 infection ***	-	-	-	-	0.21	-	-	0	0	0
Ehrlichiosis	0	0	0	0	0	0	0	0	0	0
Encephalitis	0	0	0.18	0	0	0.23	0.72	1.03	0.52	0.4
Giardiasis	6.9	5.61	4.98	6.08	3.84	1.84	2.16	5.42	4.18	4.86
Gonorrhea*	-	-	-	-	-	-	-	25.64	122.00	108.00
Gullian-Barre Syndrome	0	0.18	0	0.78	0.64	0.23	0.24	0.26	0	0
Hepatitis A	11.56	14.73	8.12	5.29	7.89	5.98	7.44	5.42	1.83	0.27
Hepatitis B	12.94	11.75	10.52	7.26	8.32	6.21	3.84	2.84	2.33	2.70
Hepatitis C	0.35	1.75	0.37	1.76	1.28	1.61	1.92	0.77	2.33	1.08
Legionellosis	0	0.18	0.18	0	0.21	0.23	0.24	0.26	0.26	0
Leishmaniasis	0	0.18	0.18	0	0	0.23	0	0.51	0.26	0
Leprosy (Hansen's Disease)	0	0	0	0	0	0	0	0	0.26	0
Leptospirosis	0	0	0.18	0	0	0	0	0.26	0	0
Lyme Disease	3.28	0.88	0.55	0.98	0.43	1.84	4.56	2.31	5.23	1.63
Lymphogranuloma venereum	7.94	5.26	1.66	2.75	1.92	0.92	1.2	0.77	0.78	0.27
Malaria	2.59	0.88	1.85	0.59	1.28	0.92	1.2	1.54	2.09	1.35
Measles	1.38	0.53	0.37	0.2	0.21	0	0	0	0	0.54
Meningitis (viral)	2.07	3.16	5.35	3.92	4.48	5.75	6	5.38	12.29	8.91
Meningococcal disease	0.52	0.35	0.55	0.39	0.85	0	0.24	0	0.26	0.54
Mumps	8.63	1.93	4.24	2.55	1.07	1.38	0.24	1.55	0.26	0.81
Paratyphoid Fever	0	0	0	0	0	0	0	0	0	0
Pertussis	0	0	0.37	0	0	0	0.48	0	0	0.54
Psittacosis	0.17	0	0	0	0	0	0.24	0	0	0
Rheumatic Fever	0	0	0	0	0.21	0	0	0.26	0.26	0
RMSF	0.17	0.35	0	0	0	0.46	0	0	0.52	0
Rubella	0	0	0.18	0	0	0	0	0	0	0
Salmonellosis	7.94	13.85	12.18	5.29	5.33	5.52	4.8	4.38	6.8	4.59
Schistosomiasis	0	0	0	0.2	0	0	0	0	0	0
Shigellosis	2.93	3.16	1.66	1.96	6.19	4.83	2.16	2.31	2.09	0.81
Strep, Invasive	0	0	0	0	0	0.23	0	0	0.52	0.27
Syphilis	26.41	24.9	20.11	21.18	17.92	14.73	7.77	7.48	5.49	4.32
Toxic Shock Syndrome	0	0	0	0.2	0.43	0	0	0.77	0.26	0.27
Toxoplasmosis	0.17	0	0	0	0	0	0	0	0	0
Trichinosis								0	0	
Trypanosomiasis	0	0	0	0	0	0	0	0	0	0
Tuberculosis (Pulmonary)	0.86	1.23	1.85	1.18	1.71	1.84	1.92	1.54	7.58	5.67
Typhoid Fever	0.52	0.53	0.18	0	0	0	0	0	0	0
Varicella	158.61	134.5	74.19	92.75	49.93	67.19	9.12	3.85	1.31	11.62
Total Population	579,417	570,262	541,886	509,950	468,662	434,617	416,735	387,774	382,338	369,993

*Reporting requirement began October 1997

Table 4. Disease Incidence Rates (Cases/100,000), USMC, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Amebiasis	1.02	0.52	0.54	0	1.72	0	0	0	0	0
Bites, Non-venomous rabies vaccination given	10.68	12.88	9.75	8.41	3.45	4.58	8.01	26.88	38.01	19.3
Bites, venomous	3.56	3.61	5.42	6.73	4.02	2.29	2.86	2.86	1.17	2.92
Brucellosis	0	0	0	0	0	0	0	0	0	0
Campylobacter	0.51	0.52	1.63	0.56	3.45	0	0.57	0	0	2.34
Chancroid	0.51	0.52	0	0.56	0	0	0	1.14	0.58	0
Chlamydia*	-	-	-	-	-	-	-	126.94	585.96	446.78
Coccidioido-mycosis	0	0	0	0	0.57	0.57	0.57	0.57	0.58	0
Dengue Fever	0	0.52	0	0	0	2.29	0	0	0	0
E. coli 0157:H7 infection *	-	-	-	-	-	-	-	1.14	1.81	0
Ehrlichiosis	0	3.63	1.63	0	0	0	0.57	0	0	0
Encephalitis	0	1.03	1.08	0	0	0	0	0.57	0.58	0
Giardiasis	2.54	8.76	3.79	4.48	1.72	1.15	4.57	1.14	1.17	3.5
Gonorrhea*	-	-	-	-	-	-	-	34.31	134.5	106.4
Gullian-Barre Syndrome	0	0.52	0.54	0	0.57	0	0	0	0	0
Hepatitis A	13.73	13.4	1.63	4.48	4.02	2.29	4	1.72	0	0
Hepatitis B	12.71	10.31	12.46	8.41	4.02	3.44	5.15	2.29	2.92	2.34
Hepatitis C	0.51	1.03	1.08	1.12	0	0	0.57	0	0	0.58
Legionellosis	0	0	0.54	0	0	0	0	0	0	0
Leishmaniasis	0	0.52	0.54	0	0	0.57	0	0	0	0
Leprosy (Hansen's Disease)	0	0	0	0	0	0	0	0	0	0
Leptospirosis	0	0	0	0.56	0	0	0	0.57	2.92	2.92
Lyme Disease	7.12	13.91	5.96	30.83	2.3	7.44	12.01	4.57	5.85	9.94
Lymphogranuloma venereum	0.51	0.52	1.08	1.68	3.45	1.72	2.29	4.57	2.92	4.09
Malaria	24.92	6.18	2.71	25.79	5.17	1.72	1.14	2.91	0.58	2.92
Measles	0	0.52	0	0.56	0	0	0	0	0	0.58
Meningitis (viral)	0.51	3.61	3.79	4.48	5.17	4.58	4.57	4.57	11.11	10.52
Meningococcal disease	0.51	2.06	1.08	0	0	0.57	0.57	0	1.17	0
Mumps	3.05	0	11.92	2.8	3.45	0	1.14	0	1.17	0
Paratyphoid Fever	0	0	0	0	0	0	0	0	0	0
Pertussis	0	0	0	0	0	0	0	0	0	0
Psittacosis	0.51	0	0	0	0	0	0	0.57	0	0.58
Rheumatic Fever	0	0.52	0	0	0	0	0	0	0	0
RMSF	3.05	3.61	3.25	1.68	0	0	0.57	4	1.17	1.17
Rubella	0	0	0	0	0	0	0	0	0	0
Salmonellosis	7.63	6.7	3.25	6.17	5.17	4.01	2.86	5.15	7.01	7.6
Schistosomiasis	0	0	0	0	0	0	0	0	0	0
Shigellosis	0	2.06	3.25	6.73	6.32	1.15	1.14	1.14	1.17	0.58
Strep, Invasive	0	0	0	0	0	0	0	0	1.17	2.92
Syphilis	21.87	17.01	35.22	13.45	10.34	4.58	5.15	5.72	8.77	5.85
Toxic Shock Syndrome	0	0	0	0	0	0	0.57	0	0	0
Toxoplasmosis	0.51	0	0	0	0	3.44	0	0	0	0
Trichinosis								0	0	
Trypanosomiasis	0	0	0	0	0.57	0	0	0	0	0
Tuberculosis (Pulmonary)	0.51	1.03	2.17	0	1.15	0.57	0.57	0.57	10.53	5.26
Typhoid Fever	0	0	0	0	0	0	0	0	0	0
Varicella	161.2	141.21	103.51	33.64	29.86	38.36	6.29	2.29	11.7	16.37
Total Population	196,652	194,040	184,529	178,379	174,158	174,639	174,83	171,637	171,288	171,326

*Reporting requirement began October 1997

SECTION 3

TEN MOST COMMONLY REPORTED COMMUNICABLE DISEASES BY FREQUENCY

Table 5. Ten Most Commonly Reported Communicable Diseases by Frequency, USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Varicella	919	767	402	473	234	292	38	10	5	43	3183
Chlamydia*	-	-	-	-	-	-	-	231	1064	892	2187
Gonorrhea*	-	-	-	-	-	-	-	100	469	402	971
Syphilis	153	142	109	108	84	55	37	30	21	16	755
Salmonellosis	46	79	66	27	24	24	20	17	26	17	346
Hepatitis B	75	67	57	37	39	25	16	11	9	10	346
Hepatitis A	67	84	44	27	37	24	31	19	7	1	341
Meningitis (viral)	12	15	29	20	21	25	25	21	47	33	248
Giardiasis	40	32	27	31	18	8	9	21	16	18	220
Shigellosis	17	18	9	10	29	21	9	8	8	3	132

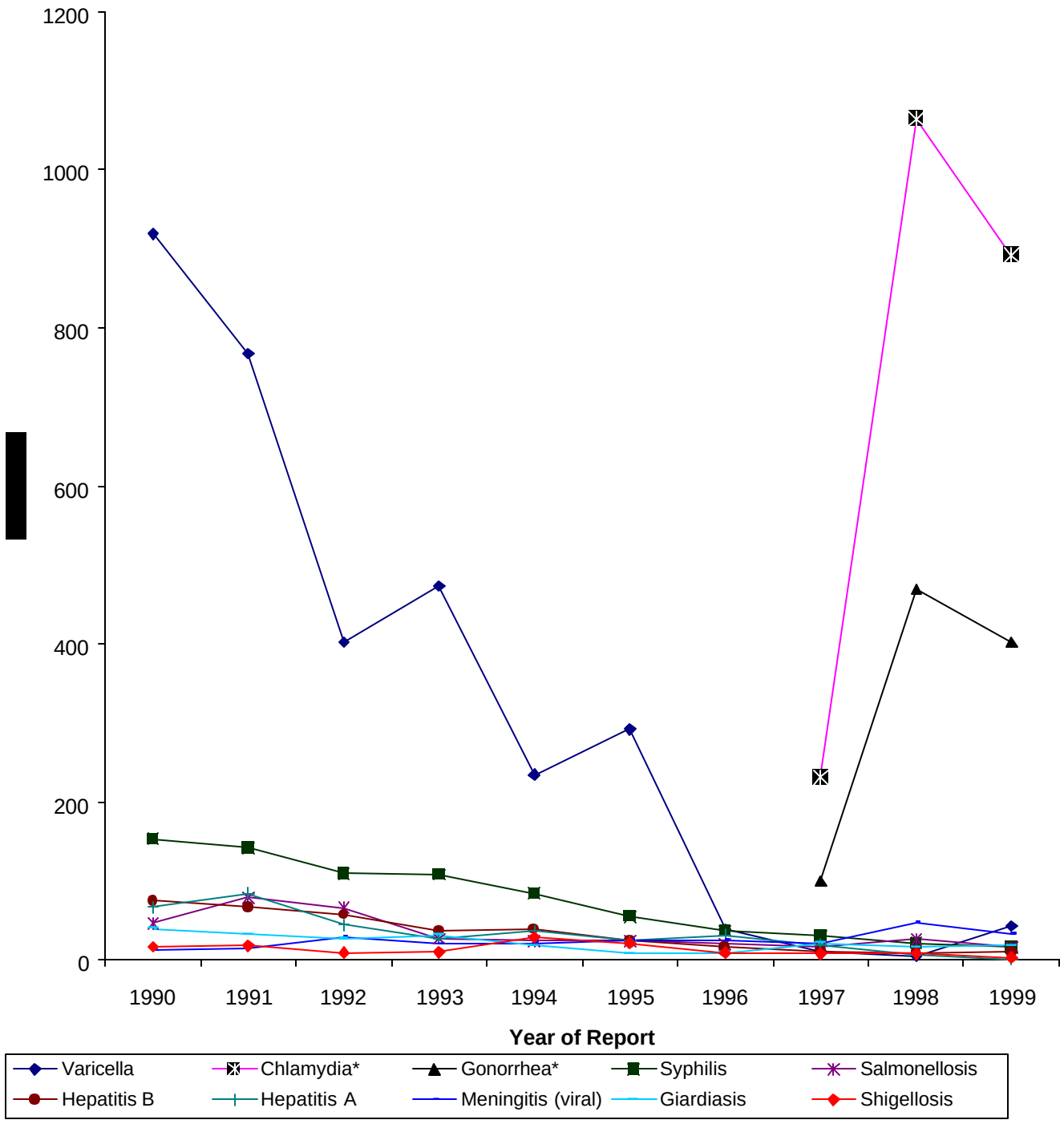
*Reporting requirement began October 1997

Table 6. Ten Most Commonly Reported Communicable Diseases by Frequency, USMC, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Chlamydia*	-	-	-	-	-	-	-	222	1002	764	1988
Varicella	317	274	191	60	52	67	11	2	20	28	1022
Gonorrhea*	-	-	-	-	-	-	-	60	232	182	474
Syphilis	43	33	65	24	18	8	9	9	15	10	234
Lyme Disease	14	27	11	55	4	13	21	7	10	17	179
Malaria	49	12	5	46	9	3	2	5	1	5	137
Hepatitis B	25	20	23	15	7	6	9	4	5	4	118
Salmonellosis	15	13	6	11	9	7	5	6	12	13	97
Meningitis (viral)	1	7	7	5	9	8	8	8	19	18	90
Hepatitis A	27	26	3	8	7	4	7	2	0	0	84

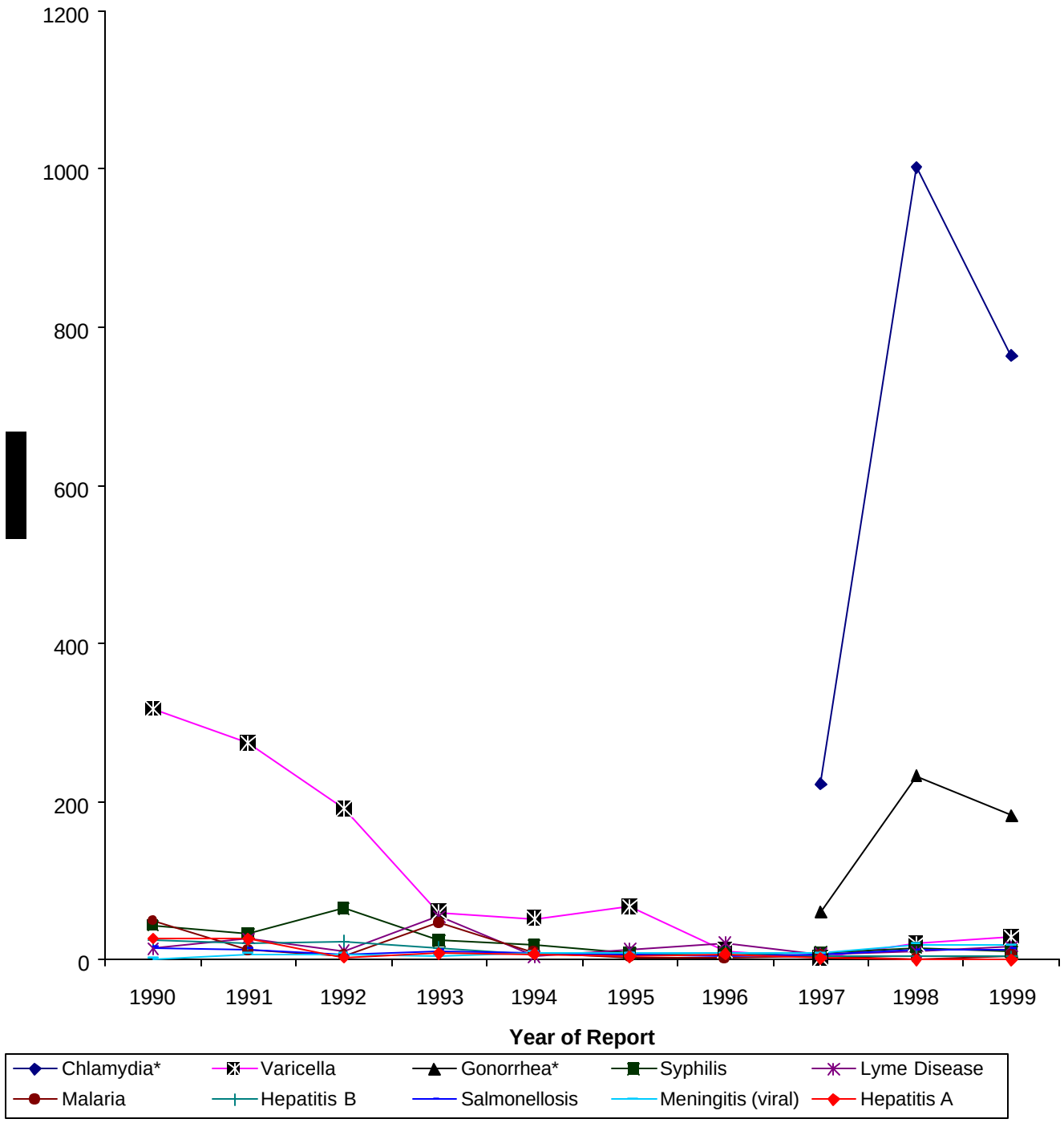
*Reporting requirement began October 1997

Figure 1. Ten Most Commonly Reported Communicable Diseases by Frequency, USN, 1990-1999



*Reporting requirement began October 1997

Figure 2. Ten Most Commonly Reported Communicable Diseases by Frequency, USMC, 1990-1999



*Reporting requirement began October 1997

SECTION 4

TEN MOST COMMONLY REPORTED COMMUNICABLE DISEASES BY INCIDENCE

Table 7. Ten Most Commonly Reported Communicable Diseases (Cases/100,000), USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Chlamydia*	-	-	-	-	-	-	-	59.57	278.00	240.00
Gonorrhea*	-	-	-	-	-	-	-	25.64	122.00	108.00
Varicella	158.61	134.5	74.19	92.75	49.93	67.19	9.12	3.85	1.31	11.62
Meningitis (viral)	2.07	3.16	5.35	3.92	4.48	5.75	6.00	5.38	12.29	8.91
Tuberculosis (Pulmonary)	0.86	1.23	1.85	1.18	1.71	1.84	1.92	1.54	7.58	5.67
Giardiasis	6.9	5.61	4.98	6.08	3.84	1.84	2.16	5.42	4.18	4.86
Salmonellosis	7.94	13.85	12.18	5.29	5.33	5.52	4.8	4.38	6.8	4.59
Syphilis	26.41	24.9	20.11	21.18	17.92	14.73	7.77	7.48	5.49	4.32
Hepatitis B	12.94	11.75	10.52	7.26	8.32	6.21	3.84	2.84	2.33	2.70
Lyme Disease	19	5	3	5	2	7	19	9	20	6

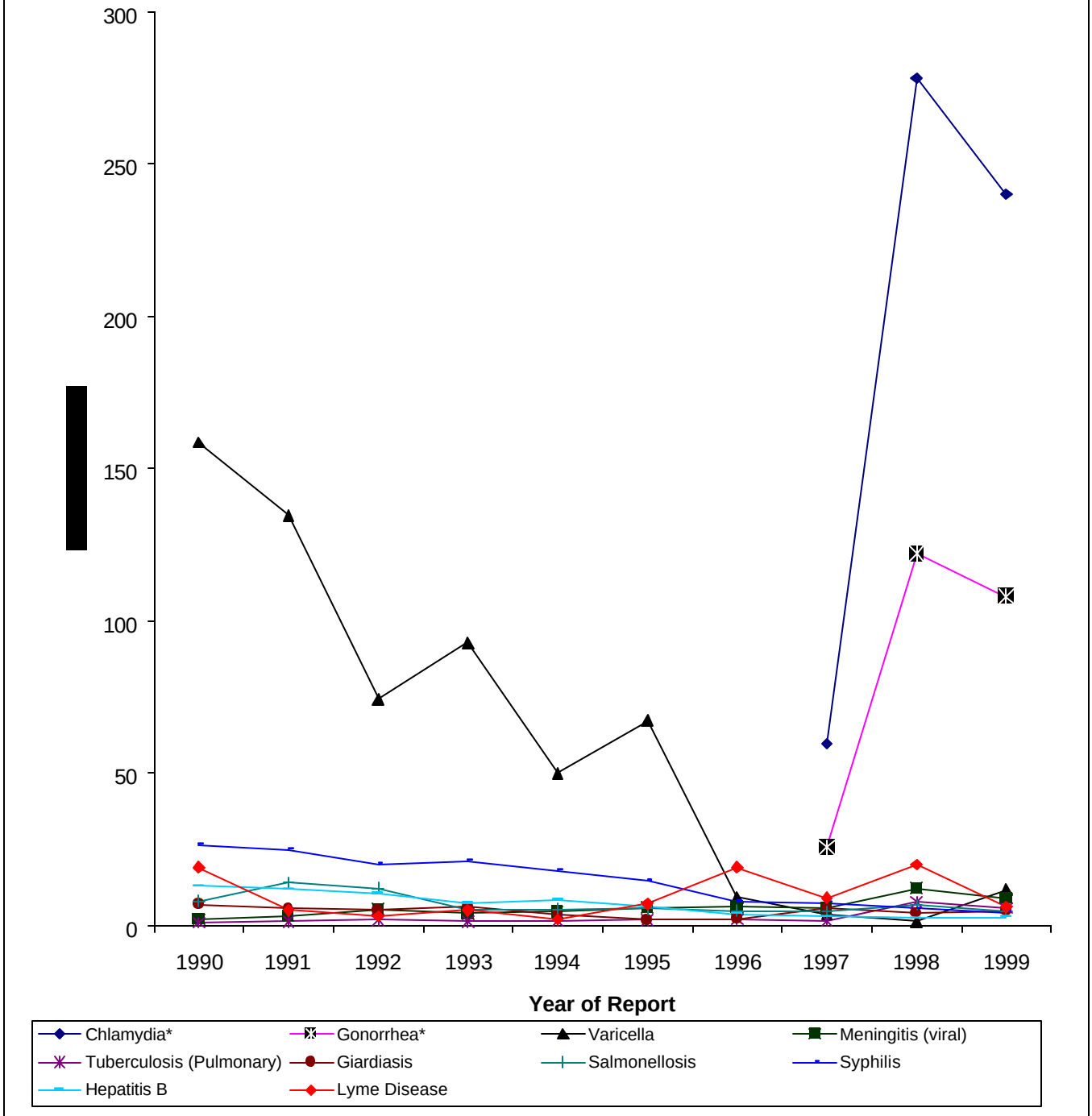
*Reporting requirements began October 1997

Table 8. Ten Most Commonly Reported Communicable Diseases (Cases/100,000), USMC, 1990-1997

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Chlamydia*	-	-	-	-	-	-	-	126.94	585.96	446.78
Gonorrhea*	-	-	-	-	-	-	-	34.31	134.50	106.40
Varicella	161.20	141.21	103.51	33.64	29.86	38.36	6.29	2.29	11.70	16.37
Meningitis (viral)	0.51	3.61	3.79	4.48	5.17	4.58	4.57	4.57	11.11	10.52
Lyme Disease	7.12	13.91	5.96	30.83	2.30	7.44	12.01	4.57	5.85	9.94
Salmonellosis	7.63	6.70	3.25	6.17	5.17	4.01	2.86	5.15	7.01	7.60
Syphilis	21.87	17.01	35.22	13.45	10.34	4.58	5.15	5.72	8.77	5.85
Tuberculosis (Pulmonary)	0.51	1.03	2.17	0.00	1.15	0.57	0.57	0.57	10.53	5.26
Lymphogranuloma venereum	0.51	0.52	1.08	1.68	3.45	1.72	2.29	4.57	2.92	4.09
Giardiasis	2.54	8.76	3.79	4.48	1.72	1.15	4.57	1.14	1.17	3.50

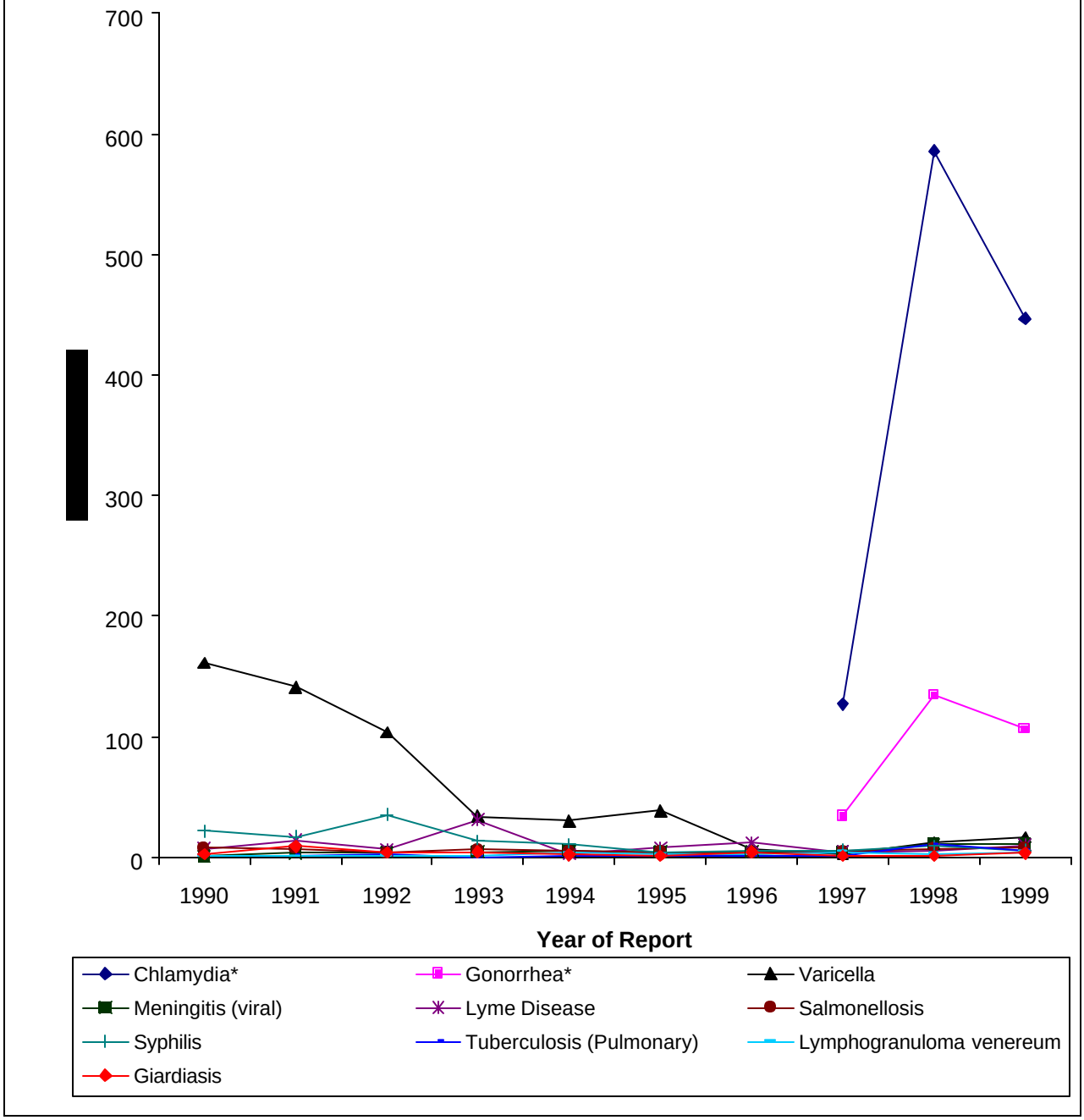
*Reporting requirements began October 1997

Figure 3. Ten Most Commonly Reported Communicable Diseases by Incidence, USN, 1990-1999



*Reporting requirement began October 1997

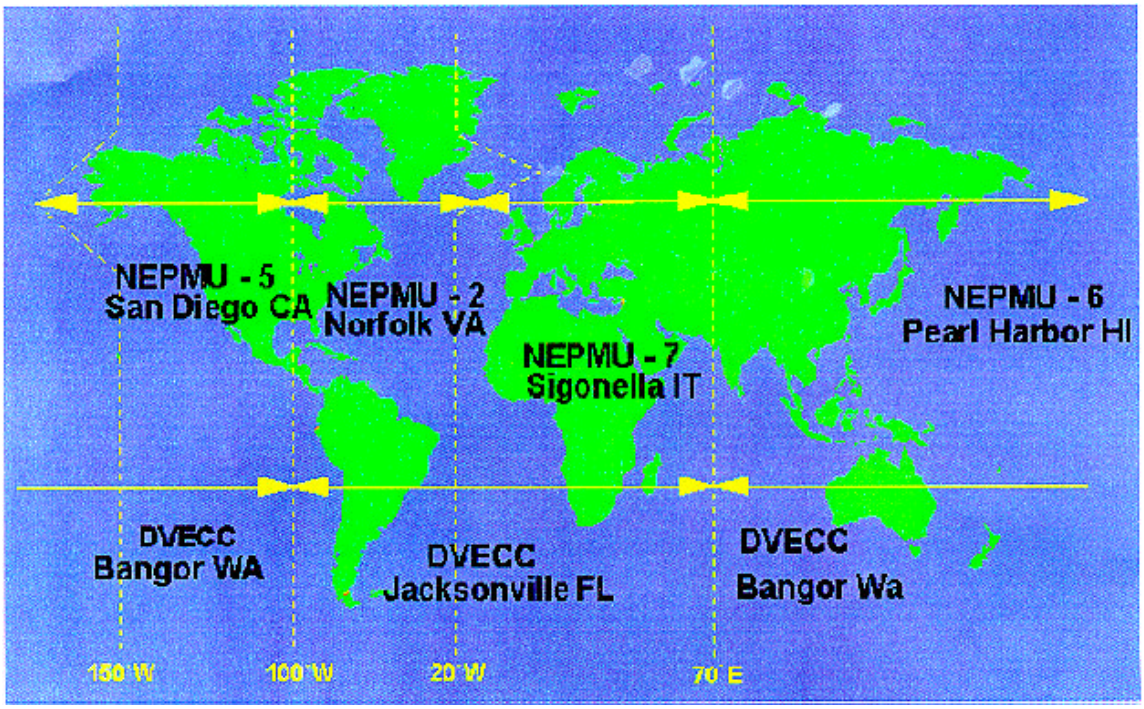
Figure 4. Ten Most Commonly Reported Communicable Diseases by Incidence, USMC, 1990-1999



*Reporting requirement began October 1997

SECTION 5

FREQUENCY BY GEOGRAPHIC AREA



Area of Responsibility (AOR)

The AOR for NEPMU 2 (located in Norfolk, VA) is 100 W longitude east to 20 W longitude, including Iceland.

The AOR for NEPMU 5 (located in San Diego, CA) is 100 W longitude west to 150 W longitude including Alaska.

The AOR for NEPMU 6 (located in Pearl Harbor, HI) is 150 W longitude west to 70 E longitude, except Alaska.

The AOR for NEPMU 7 (located in Sigonella, IT) is 20 W longitude, except Iceland.

Table 9. Hepatitis A Cases by Geographic Area, USN/USMC, 1990-1999

USN	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	6	20	11	16	12	9	8	7	3	1	93
NEPMU 5	27	48	15	4	20	13	21	7	4	0	159
NEPMU 6	34	15	15	6	2	1	2	1	0	0	76
NEPMU 7	0	1	3	1	3	1	0	4	0	0	13

USMC	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	4	7	0	2	2	1	0	0	0	0	16
NEPMU 5	9	7	3	3	5	3	5	2	0	0	37
NEPMU 6	14	12	0	3	0	0	2	0	0	0	31
NEPMU 7	0	0	0	0	0	0	0	0	0	0	0

USN/USMC Total	
NEPMU 2	109
NEPMU 5	196
NEPMU 6	107
NEPMU 7	13

Table 10. Hepatitis B Frequency by Geographic Area, USN/USMC, 1990-1999

USN	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	28	30	27	22	24	11	12	6	5	3	168
NEPMU 5	24	28	16	8	11	11	4	1	1	1	105
NEPMU 6	22	6	13	5	2	3	0	4	1	1	57
NEPMU 7	1	3	1	2	2	0	0	0	1	1	11

USMC	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	12	13	11	10	0	2	1	3	2	2	56
NEPMU 5	4	3	11	3	6	3	7	1	4	1	43
NEPMU 6	8	4	1	2	1	1	1	0	0	0	18
NEPMU 7	1	0	0	0	0	0	0	0	0	1	2

USN/USMC Total	
NEPMU 2	224
NEPMU 5	148
NEPMU 6	75
NEPMU 7	13

Table 11. Salmonellosis Frequency by Geographic Area, USN/USMC, 1990-1999

USN	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	26	23	11	13	13	13	8	8	10	6	131
NEPMU 5	4	6	2	4	8	6	6	4	5	1	46
NEPMU 6	3	7	4	1	1	0	2	2	2	1	23
NEPMU 7	13	43	49	9	2	5	4	3	7	1	136

USMC	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	11	3	0	10	3	1	2	5	6	3	44
NEPMU 5	2	4	2	0	5	4	2	0	4	1	24
NEPMU 6	1	3	2	0	1	0	1	1	1	0	10
NEPMU 7	1	3	2	1	0	2	0	0	1	0	10

USN/USMC Total	
NEPMU 2	175
NEPMU 5	70
NEPMU 6	33
NEPMU 7	146

Table 12. Syphilis Frequency by Geographic Area, USN/USMC, 1990-1999

USN	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	62	94	67	91	50	44	29	19	11	10	477
NEPMU 5	46	21	24	11	25	5	7	7	12	3	161
NEPMU 6	42	22	15	1	5	5	1	4	2	1	98
NEPMU 7	3	5	3	5	4	1	0	3	1	1	26

USMC	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	13	16	31	16	8	2	0	4	3	3	96
NEPMU 5	19	9	17	5	6	5	7	2	1	2	73
NEPMU 6	11	8	17	3	4	1	2	3	3	0	52
NEPMU 7	0	0	0	0	0	0	0	0	0	0	0

USN/USMC Total	
NEPMU 2	573
NEPMU 5	234
NEPMU 6	150
NEPMU 7	26

Table 13. Varicella Frequency by Geographic Area, USN/USMC, 1990-1999

USN	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	615	456	182	301	162	238	8	3	22	29	2016
NEPMU 5	243	256	161	119	59	29	29	4	20	19	939
NEPMU 6	45	41	48	44	10	24	0	2	6	7	227
NEPMU 7	16	14	1	9	3	1	1	1	3	7	56

USMC	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Subtotal
NEPMU 2	131	150	81	38	31	19	1	2	8	16	477
NEPMU 5	137	86	74	12	18	24	9	0	9	17	386
NEPMU 6	44	25	20	9	3	24	1	0	1	3	130
NEPMU 7	5	13	16	1	0	0	0	0	0	0	35

USN/USMC Total	
NEPMU 2	2493
NEPMU 5	1325
NEPMU 6	357
NEPMU 7	91

Figure 5. Hepatitis A Frequency by Geographical Area, USN/USMC, 1990-1999

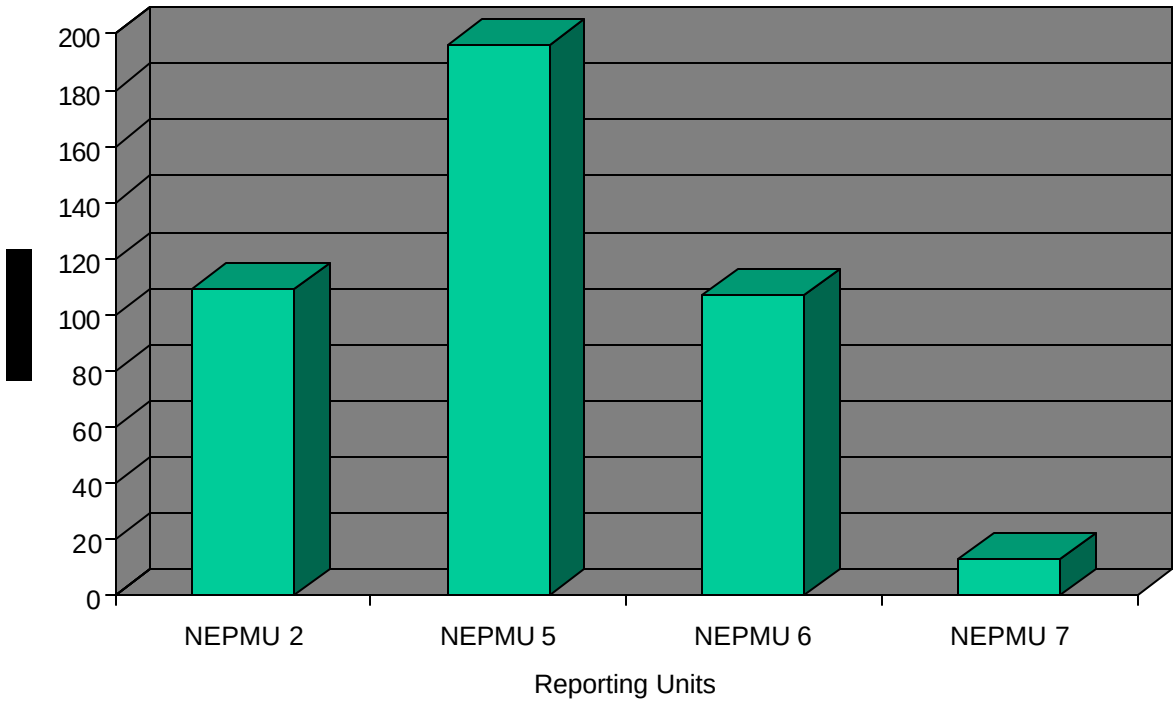


Figure 6. Hepatitis B Frequency by Geographical Area, USN/USMC, 1990-1999

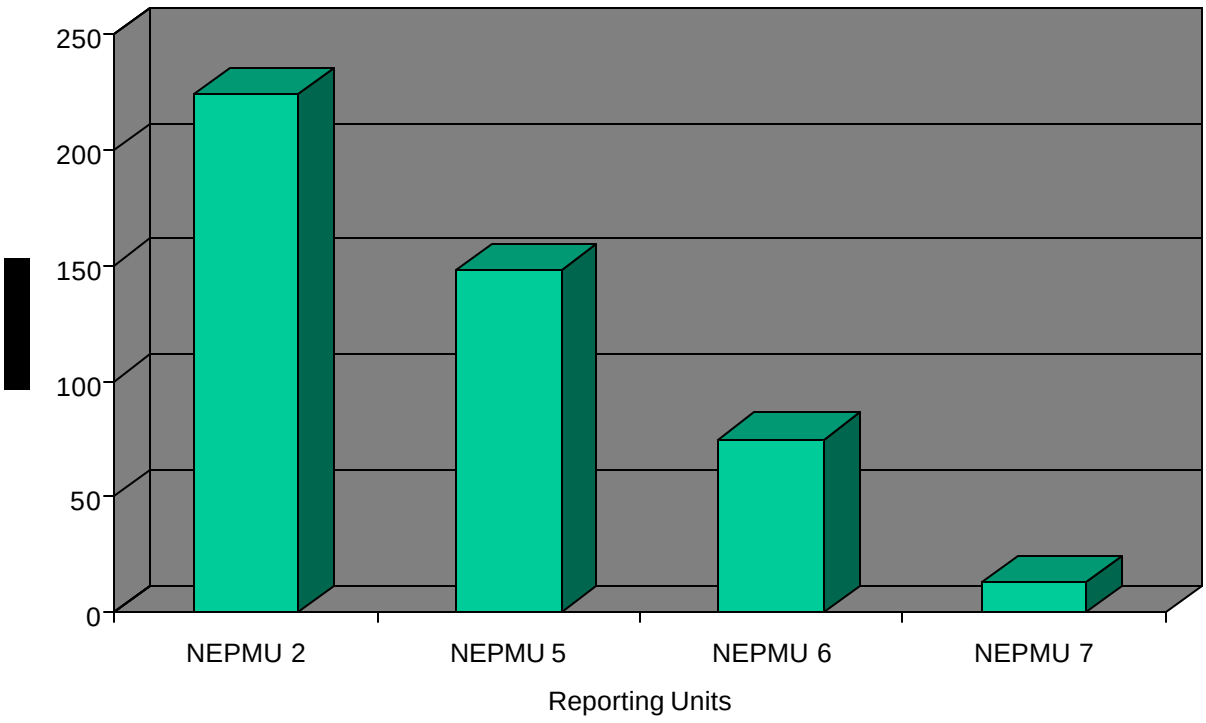


Figure 7. Salmonellosis Frequency by Geographical Area, USN/USMC, 1990-1999

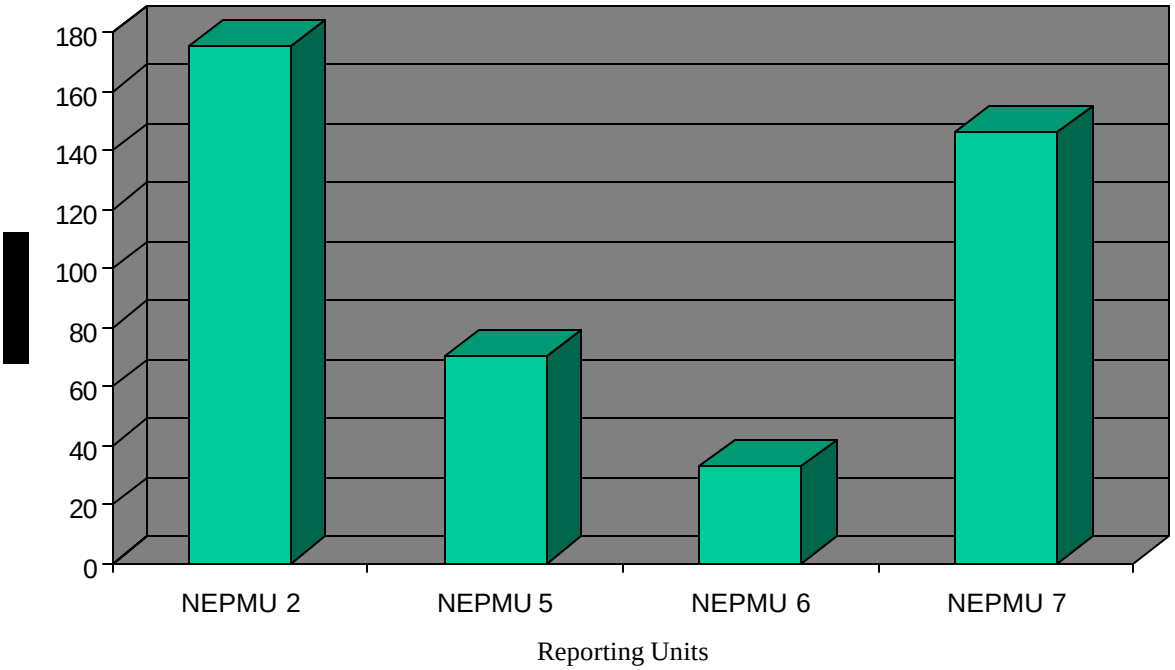


Figure 8. Syphilis Frequency by Geographical Area, USN/USMC, 1990-1999

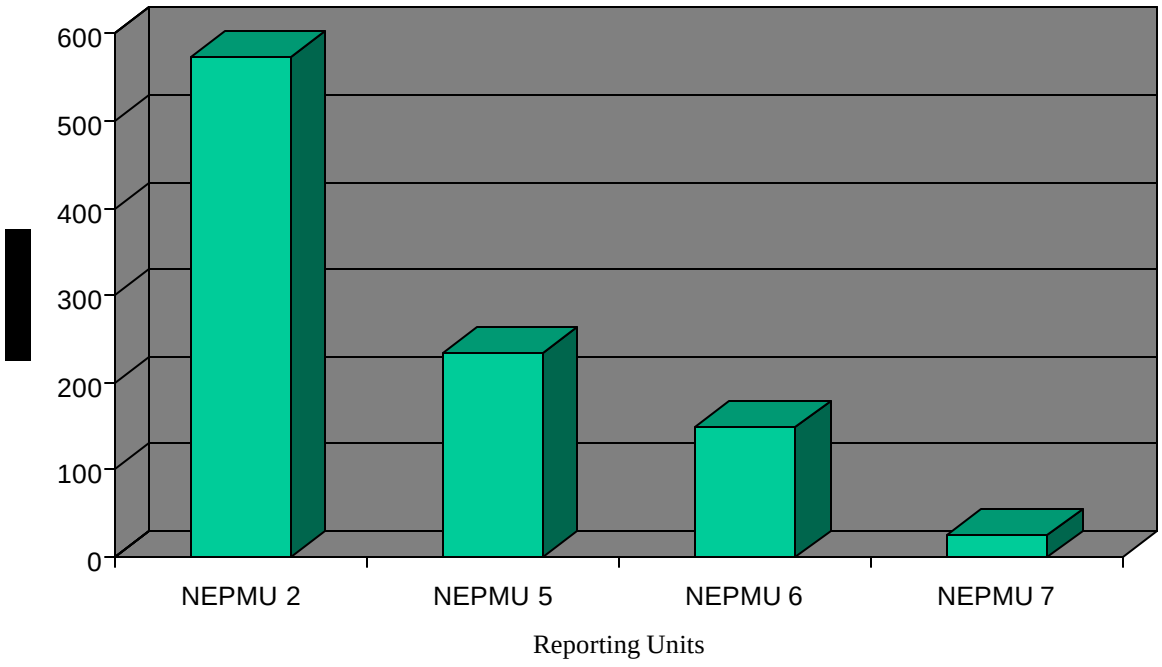
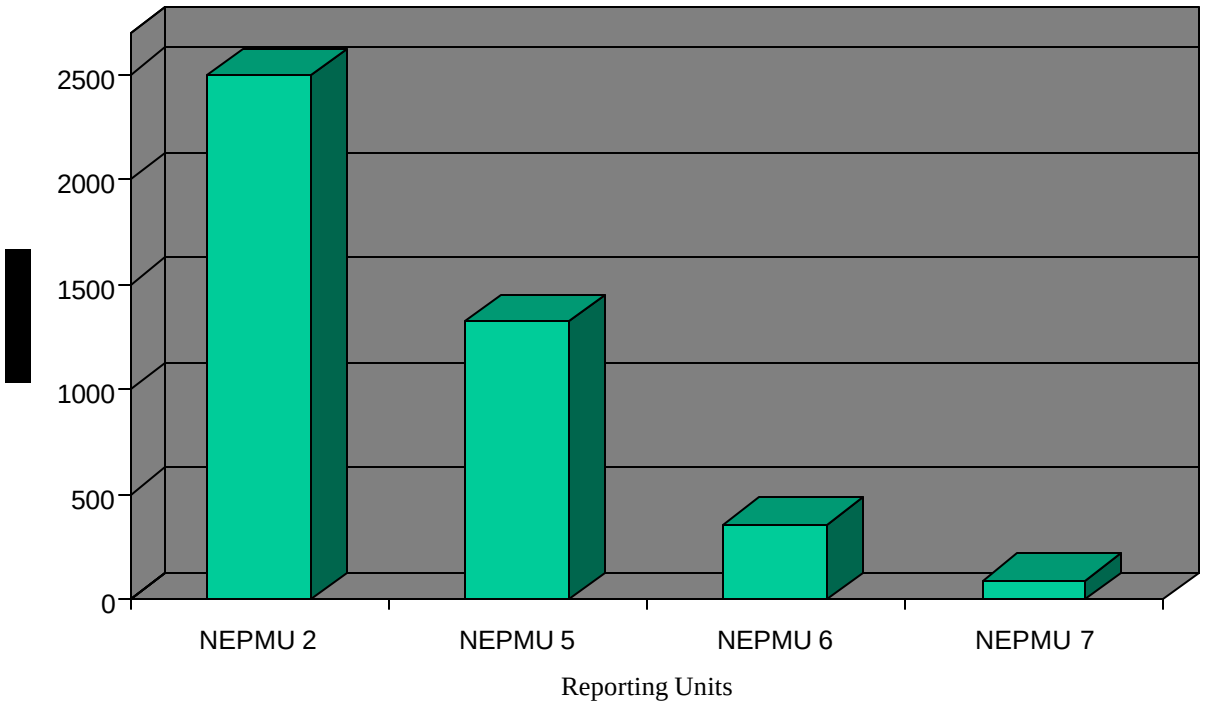


Figure 9. Varicella Frequency by Geographical Area, USN/USMC, 1990-1999



SECTION 6

ENTERIC DISEASES

Table 14. Number of Reported Cases of Enteric Diseases, USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Amebiasis	31	17	10	2	1	3	3	1	4	0	72
Giardiasis	40	32	27	31	18	8	9	21	0	0	186
Hepatitis A	67	84	44	27	37	24	31	21	16	18	369
Salmonellosis	46	79	66	27	24	24	20	17	7	1	311
Shigellosis	17	18	9	10	29	21	9	8	8	3	132

Table 15. Number of Reported Cases of Enteric Diseases, USMC, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Amebiasis	2	1	1	0	3	0	0	0	0	0	7
Giardiasis	5	17	7	8	3	2	8	2	2	6	60
Hepatitis A	27	26	3	8	7	4	7	2	0	0	84
Salmonellosis	15	13	6	11	9	7	5	6	12	13	97
Shigellosis	3	4	6	12	11	2	2	2	2	1	45

Figure 10. Enteric Disease, USN, 1990-1999

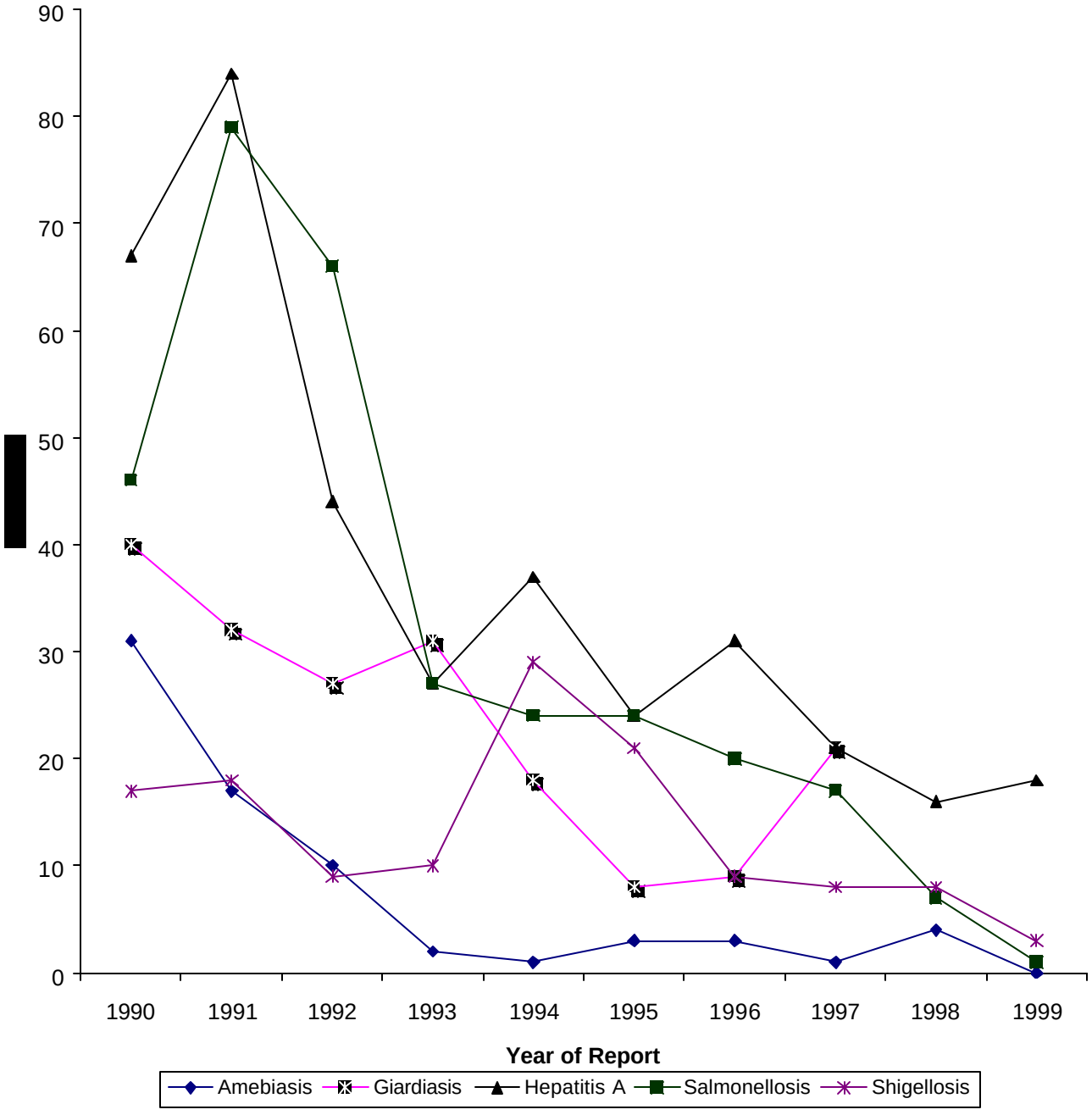
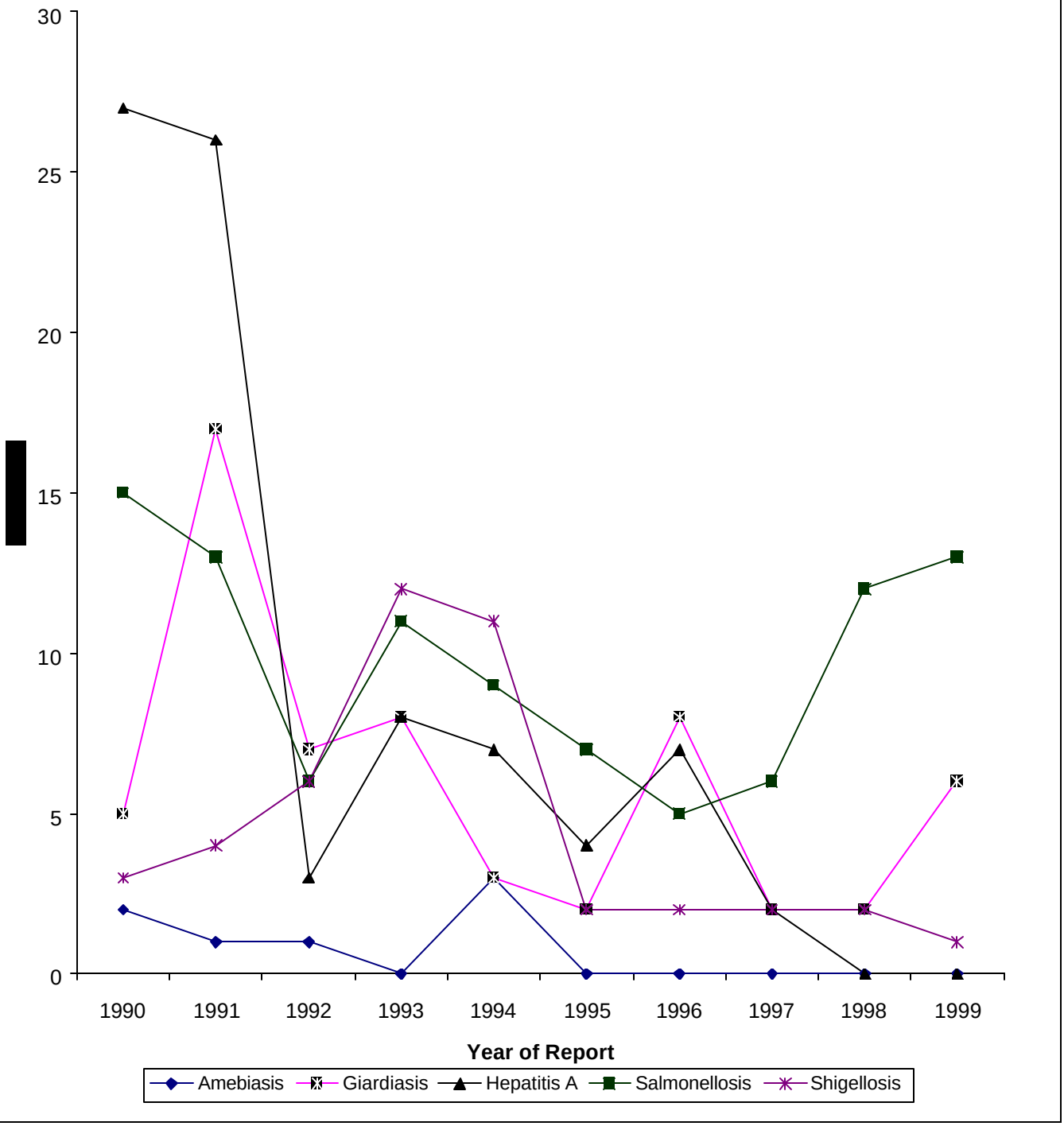


Figure 11. Enteric Diseases, USMC, 1990-1999



SECTION 7

SEXUALLY TRANSMITTED DISEASES (STDs)

Table 16. STD Reports, USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Chancroid	**0**	**1**	**4**	**32**	**2**	**4**	**1**	**4**	**3**	**1**	**52**
Chlamydia*	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**231**	**1064**	**892**	**2187**
Gonorrhea*	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**100**	**469**	**402**	**971**
Hepatitis B	**75**	**67**	**57**	**37**	**39**	**25**	**16**	**11**	**9**	**10**	**346**
Lymphogranuloma venereum	**46**	**30**	**9**	**14**	**9**	**4**	**5**	**3**	**3**	**1**	**124**
Syphilis	**153**	**142**	**109**	**108**	**84**	**64**	**37**	**30**	**21**	**16**	**764**
Typhoid Fever	**3**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**

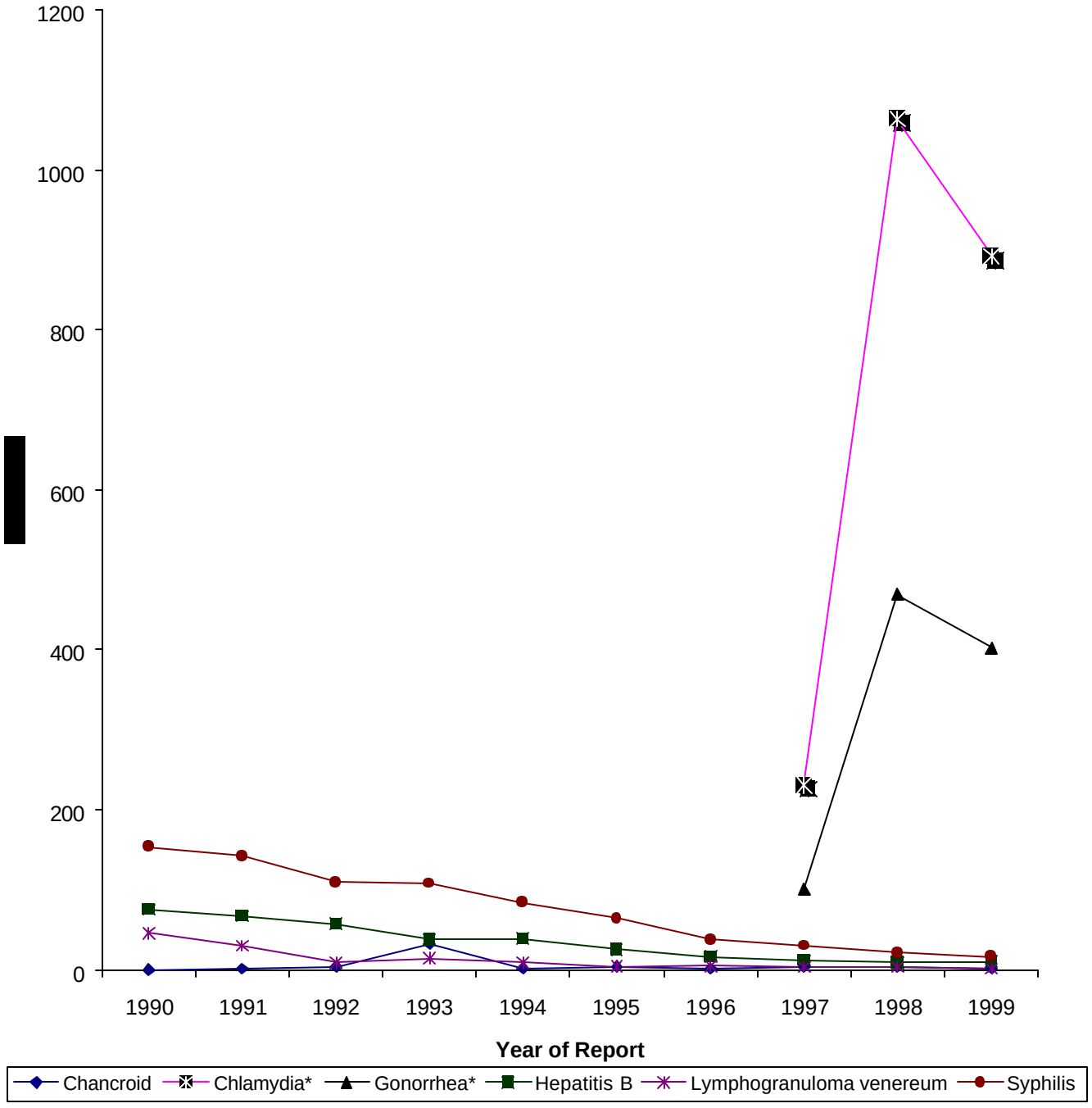
*Reporting requirement began October 1997

Table 17. STD Reports, USMC, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Chancroid	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**21**	**1**	**4**	**29**
Chlamydia*	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**222**	**1002**	**764**	**1988**
Gonorrhea*	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**60**	**232**	**182**	**474**
Hepatitis B	**25**	**20**	**23**	**15**	**7**	**6**	**9**	**4**	**5**	**4**	**118**
Lymphogranuloma venereum	**1**	**1**	**2**	**3**	**6**	**3**	**4**	**24**	**5**	**7**	**56**
Syphilis	**43**	**33**	**65**	**24**	**18**	**8**	**9**	**9**	**15**	**10**	**234**
Typhoid Fever	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

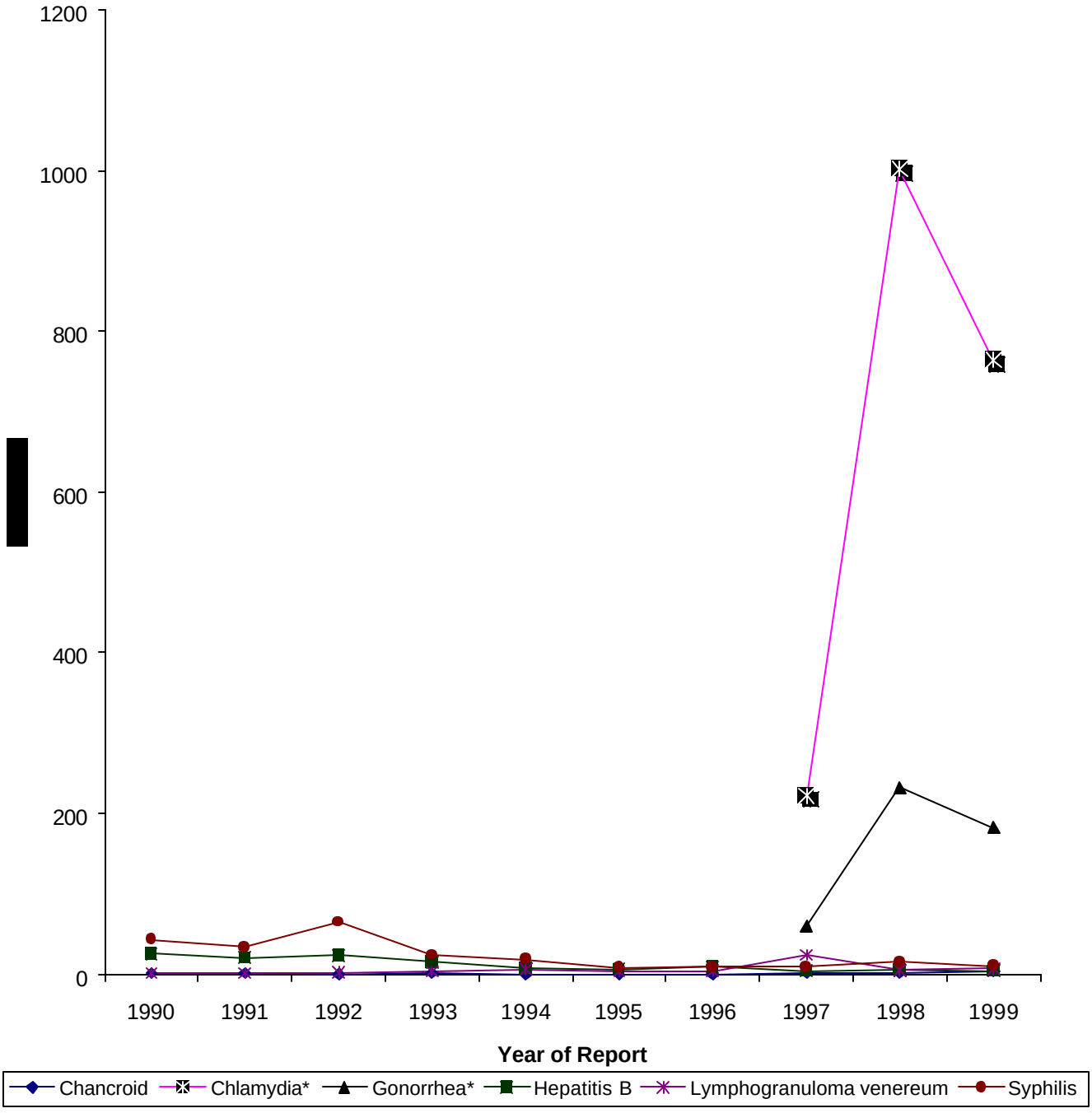
*Reporting requirement began October 1997

Figure 12. STD Cases, USN, 1990-1999



*Reporting requirement began October 1997

Figure 13. STD Cases, USMC, 1990-1999



*Reporting requirement began October 1997

SECTION 8

VACCINE PREVENTABLE DISEASES

Table 18. Vaccine Preventable Diseases, USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Hepatitis A	67	84	44	27	37	26	31	19	7	1	343
Hepatitis B	75	67	57	37	39	25	16	11	9	10	346
Measles	8	3	2	1	1	0	0	0	0	2	17
Mumps	50	11	23	13	5	5	1	5	5	3	121
Pertussis	0	0	0	0	0	0	2	0	0	2	4
Rubella	0	0	1	0	0	0	0	0	0	0	1
Typhoid Fever	3	3	1	0	0	0	0	0	0	0	7
Varicella	919	767	402	473	234	292	38	10	5	43	3183

Table 19. Vaccine Preventable Diseases, USMC, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Hepatitis A	27	26	3	8	7	4	7	2	0	0	84
Hepatitis B	25	20	23	15	7	6	9	4	5	4	118
Measles	0	1	0	1	0	0	0	0	0	1	3
Mumps	6	0	22	4	6	0	2	0	2	0	42
Pertussis	0	0	0	0	0	0	0	0	0	0	0
Rubella	0	0	0	0	0	0	0	0	0	0	0
Typhoid Fever	0	0	0	0	0	0	0	0	0	0	0
Varicella	317	274	191	60	52	67	11	2	20	28	1022

Figure 14. Vaccine Preventable Diseases, USN, 1990-1999

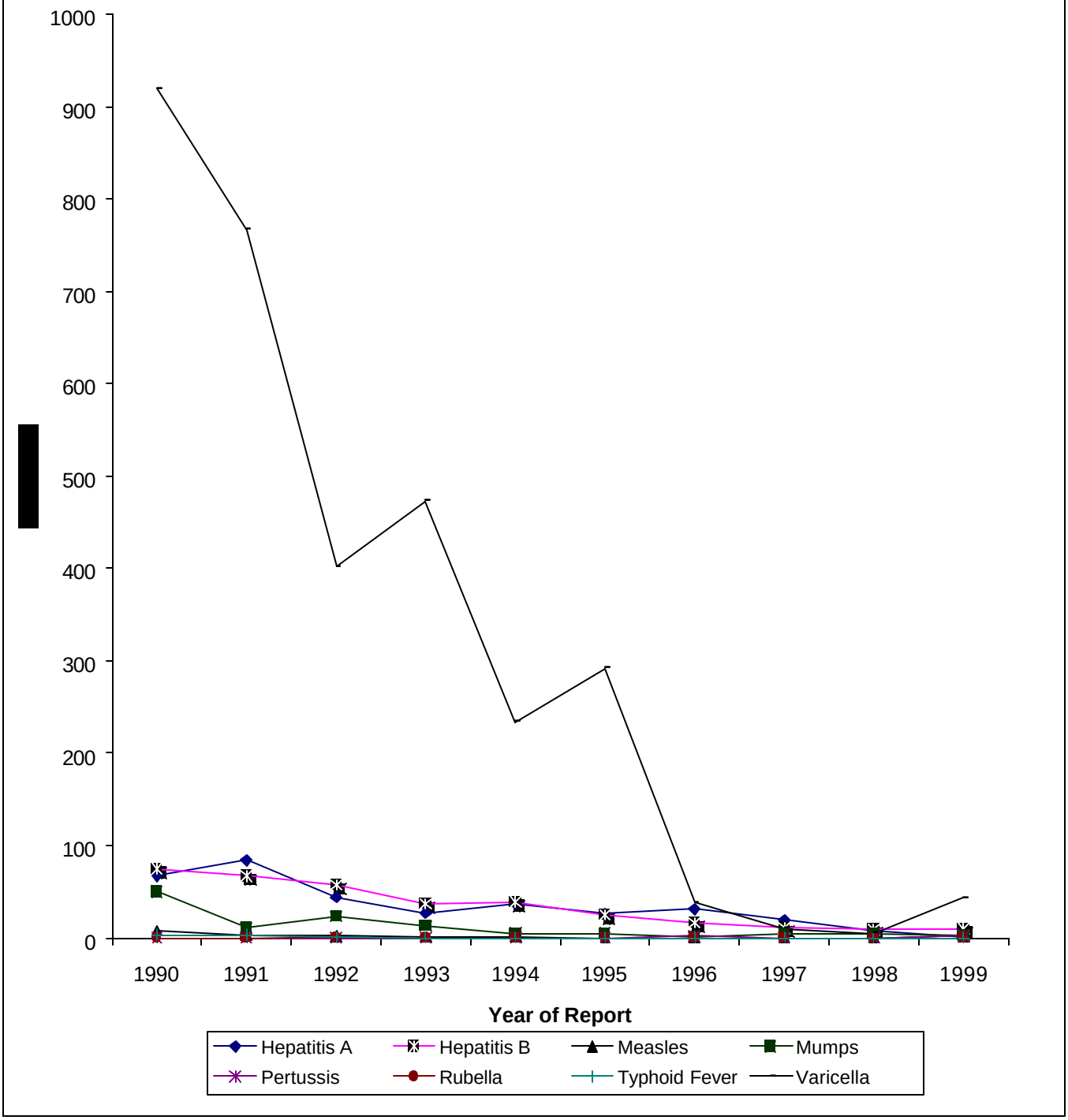
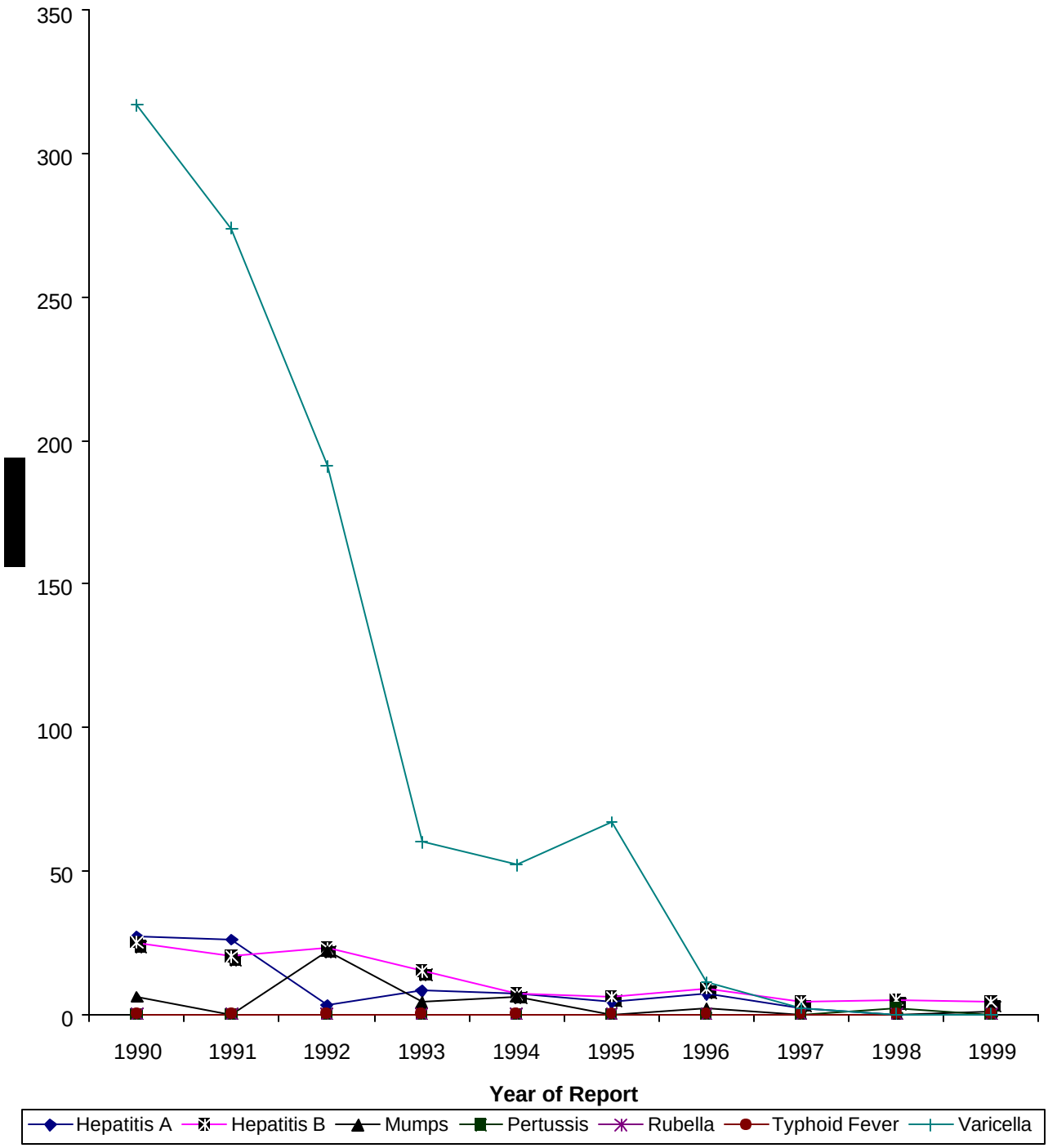


Figure 15. Vaccine Preventable Diseases, USMC, 1990-1999



SECTION 9

VECTOR-BORNE DISEASES

Table 20. Vector-borne Diseases,Total Cases, USN, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Dengue Fever	5	13	20	1	1	7	1	1	1	0	50
Encephalitis	0	0	1	0	0	1	3	4	2	1	12
Leishmaniasis	0	1	1	0	0	1	0	2	1	0	6
Lyme Disease	19	5	3	5	2	7	19	9	20	6	95
Malaria	15	5	10	3	6	3	5	6	8	5	66
RMSF	1	2	0	0	0	2	0	0	2	0	7
Schistosomiasis	0	0	0	1	0	0	0	0	0	0	1
Trypanosomiasis	0	0	0	0	0	0	0	0	0	0	0

Table 21. Vector-borne Diseases, Total Cases, USMC, 1990-1999

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Dengue Fever	0	1	0	0	0	4	0	0	0	0	5
Encephalitis	0	2	2	0	0	0	0	1	1	1	7
Leishmaniasis	0	1	1	0	0	1	0	0	0	0	3
Lyme Disease	14	27	11	55	4	13	21	7	10	17	179
Malaria	49	12	5	56	9	3	2	24	1	5	166
RMSF	6	7	6	3	0	0	1	7	0	0	30
Schistosomiasis	0	0	0	0	0	0	0	0	0	0	0
Trypanosomiasis	0	0	0	0	1	0	0	0	0	0	1

Table 22. Vector-borne Diseases of Military Importance, 1990-1999
Incidence per 100,000

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Malaria, USMC	24.92	6.18	2.71	25.79	5.17	1.72	1.14	2.91	0.58	2.92
Malaria, USN	2.59	0.88	1.85	0.59	1.28	0.92	1.2	1.54	2.09	1.35
Dengue, USMC	0	0.52	0	0	0	2.29	0	0	0	0
Dengue, USN	0.86	2.28	3.69	0.2	0.21	1.61	0.24	0.26	0.26	0

Table 23. Vector-borne Diseases of Very Low Occurance, 1990-1999
Incidence per 100,000

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Schistosomiasis, USMC	0	0	0	0	0	0	0	0	0	0
Schistosomiasis, USN	0	0	0	0.2	0	0	0	0	0	0
Trypanisomiasis, USMC	0	0	0	0	0.57	0	0	0	0	0
Trypanisomiasis, USN	0	0	0	0	0	0	0	0	0	0
Leishmaniasis, USMC	0	0.52	0.54	0	0	0.57	0	0	0	0
Leishmaniasis, USN	0	0.18	0.18	0	0	0.23	0	0.51	0.26	0
Encephalitis, USMC	0	1.03	1.08	0	0	0	0	0.57	0.58	0
Encephalitis, USN	0	0	0.18	0	0	0.23	0.72	1.03	0.52	0.4

Table 24. Tickborne Diseases, 1990-1999
Incidence per 100,000

Disease	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Lyme, USMC	7.12	13.91	5.96	30.83	2.3	7.44	12.01	4.57	2.85	9.94
Lyme, USN	3.28	0.88	0.55	0.98	0.43	1.84	4.56	2.31	5.23	1.63
Rocky Mountain Spotted Fever, USMC	3.05	3.61	3.25	1.68	0	0	0.57	4	1.17	1.17
Rocky Mountain Spotted Fever, USN	0.17	0.35	0	0	0	0.46	0	0	0.52	0

Figure 16. Vector-borne Diseases of Military Importance, 1990-1999

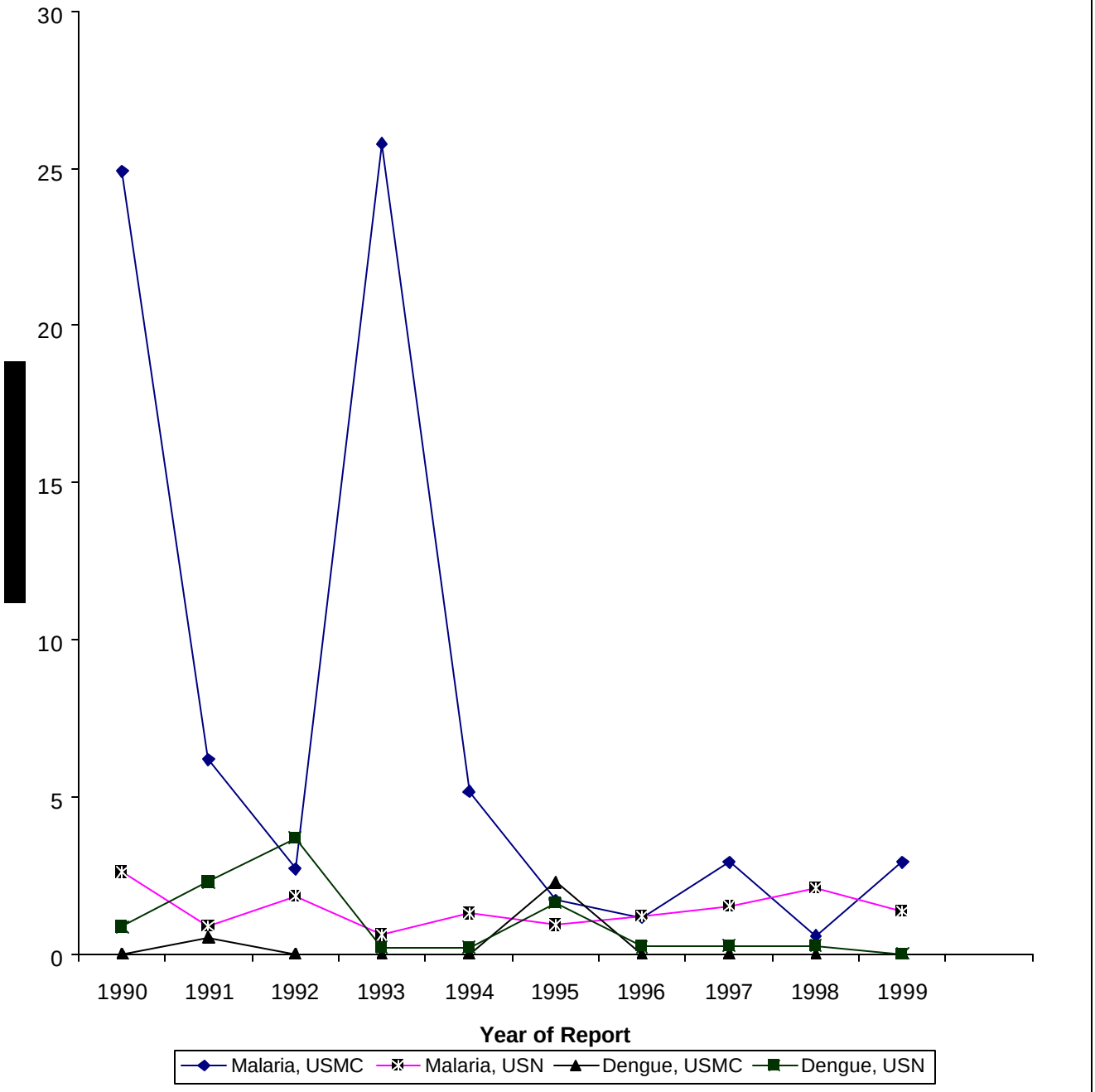


Figure 17. Vector-borne Diseases of Very Low Occurance, 1990-1999

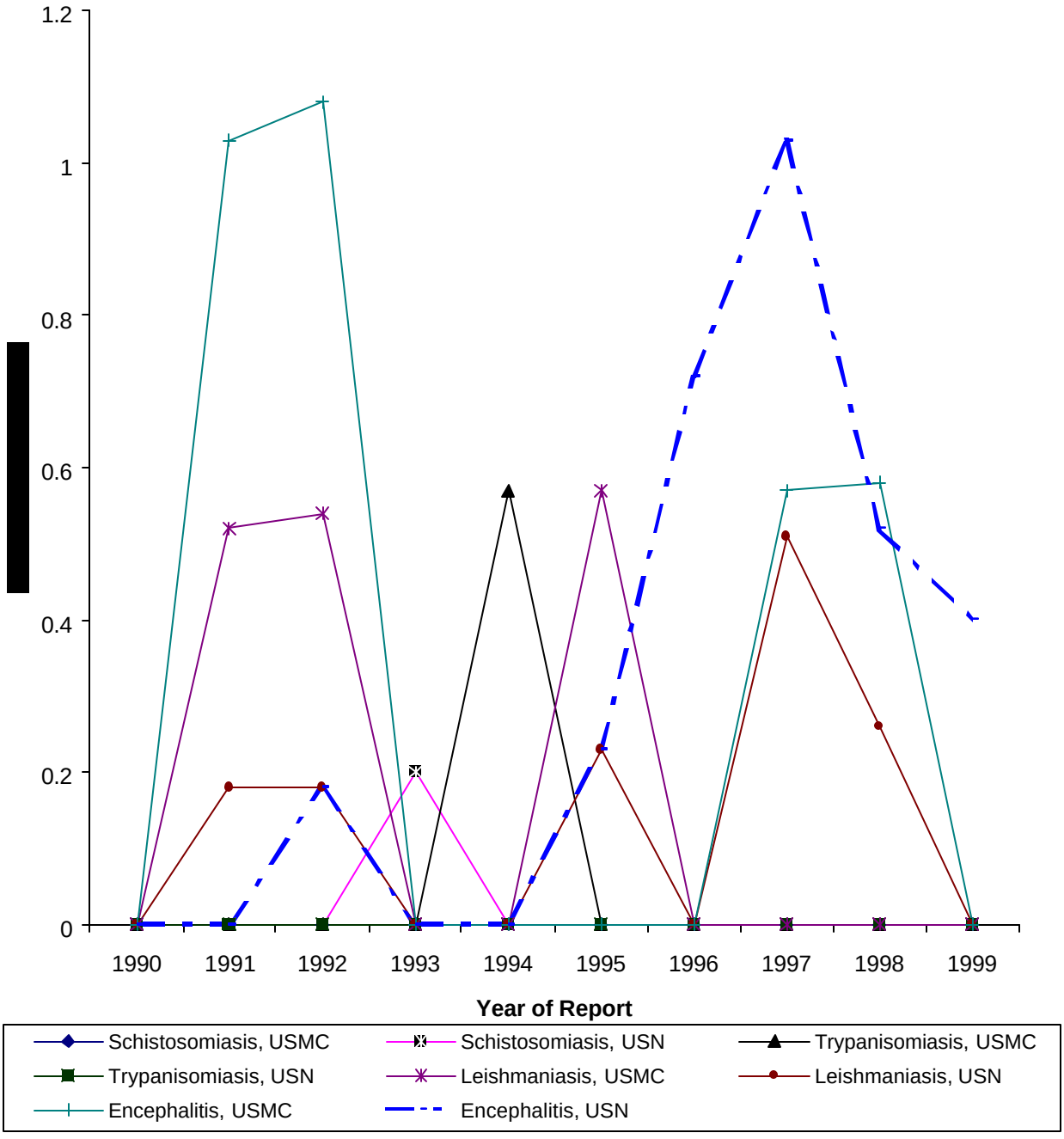
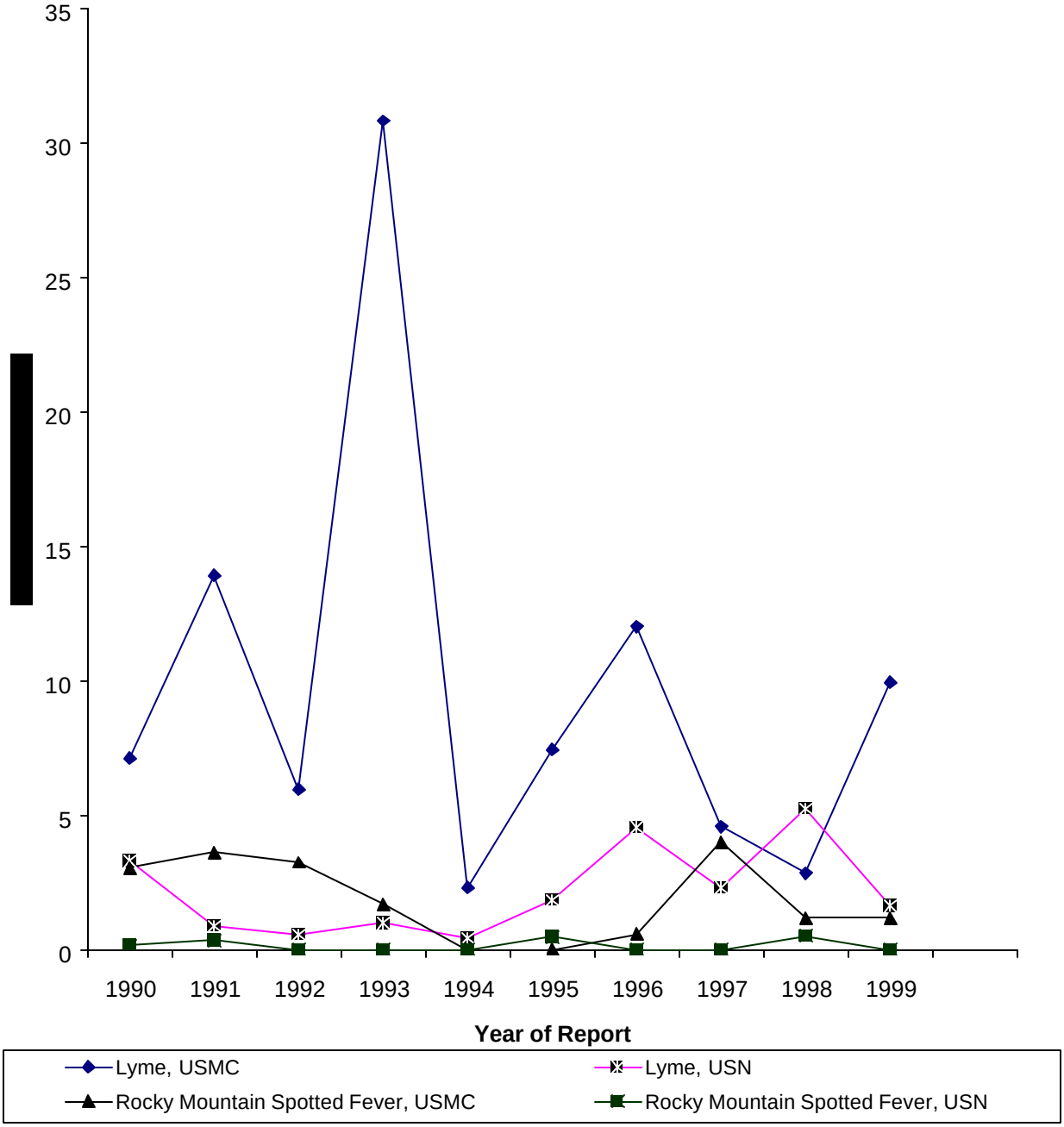


Figure 18. Tickborne Diseases, 1990-1999



SECTION 10

COMPARISON WITH DEFENSE MEDICAL EPIDEMIOLOGIC DATABASE (DMED)

Figure 19. Malaria, USN and USMC, 1990-1999

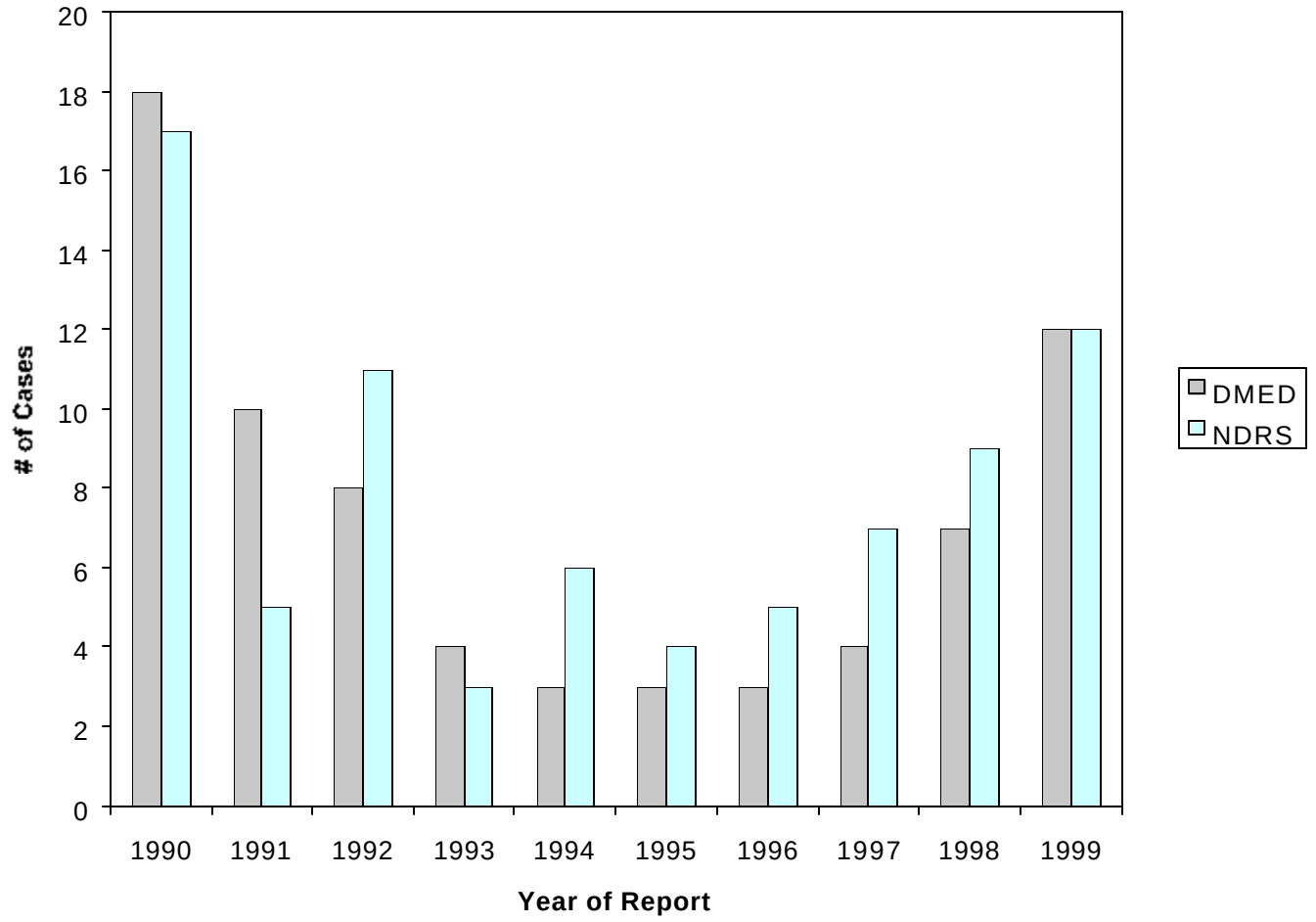


Figure 20. Viral Meningitis, USN and USMC, 1990-1999